ORDER NO. GAD8601003C1
A1

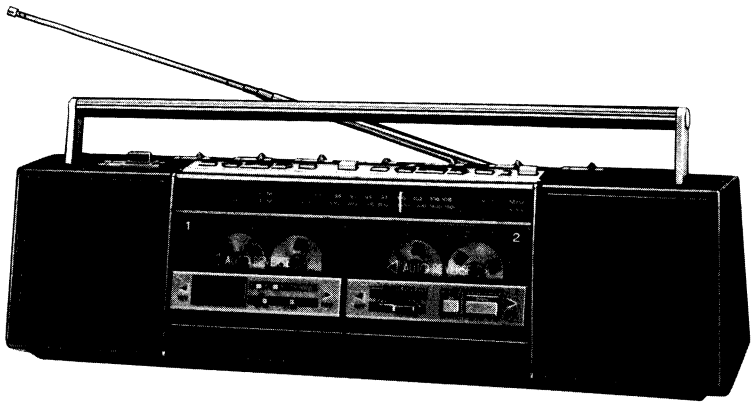
Service Manual

Radio Cassette

FM-AM-FM Stereo Radio Cassette Recorder

RX-FW50

(Black)



This is the Service Manual for the following area.

M...For U.S.A.

RX-C48 MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	AC; 120 V, 60 Hz (AC adaptor) Battery; 9 V (six UM-2, "C" size batteries) Car Battery; with optional car adaptor RP-917H
Power Consumption:	12 W (AC adaptor only)
Power Output:	5.4 W (2.7 W×2)...RMS (max.)
Speaker:	Woofer; 4" (10 cm) PM Dynamic Speaker (2.7Ω)
Input:	MIC; sensitivity 0.4 mV/applicable impedance 200~600Ω LINE IN; sensitivity 200 mV/40 kΩ over
Output:	HEADPHONES; 32Ω
Dimensions:	20" (W)×5½" (H)×5⅛" (D) [510 (W)×140 (H)×130 (D) mm]
Weight:	6 lbs. 6.3 oz. (2.9 kg) without battery

Radio Section:

Radio Frequency Range:	FM; 88~108 MHz AM; 525~1610 kHz
Intermediate Frequency:	FM; 10.7 MHz AM; 455 kHz
Sensitivity:	FM; 2 μV/50 mW output AM; 60 μV/m/50 mW output

Tape Deck Section:

Frequency Response:	60~15,000 Hz (with normal tape) 60~16,000 Hz (with CrO_2 tape)
Recording System:	AC bias, AC erase
Tape Speed:	1⅞ ips (4.8 cm/s)
Track System:	4-track 2 channel stereo recording and playback.

Weights and dimensions shown are approximate.
Design and specifications are subject to change without notice.

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TPS (TAPE PROGRAM SENSOR) (TAPE 1, TAPE 2)

The Tape Program Sensor system can be set to automatically play back a predetermined selection on a recorded cassette tape.

1. Set the TPS/Blank Skip Switch to "1/OFF" or "2/ON".
   "1/OFF"...TPS will function in TAPE 1 only.
   "2/ON"... TPS will function in TAPE 2 only.
2. Press either side of the Fast Button (◀◀ or ▶▶).
   •The Forward or Reverse Indicator will flash.

Playback / Fast Buttons	REV Reverse playback	FWD Forward playback
▶▶	Present program	Next program
◀◀	Next program	Present program

3. When the start of the desired selection is reached, the Forward or Reverse Indicator will stop flashing and stay lit, and playback will start.

In the following instances the Tape Program Sensor system may not operate normally. This does not, however, indicate a failure.

- •With tapes of conversations having a great many gaps in the dialog.
- •With tapes having tracks with extremely low sound levels.
- •With tapes having portions among the tracks where no sound has been recorded.
- •With tapes having intervals of less than 4 seconds long.
- •With tapes having a high level of noise during the intervals.
- •When less than 10 seconds separate the program you are listening to and the next program when you want to move on to listen to the next program.

■ Blank Skip Function (TAPE 2)

- •Useful for skipping over the unrecorded portion at the end of the tape during auto-reverse playback.

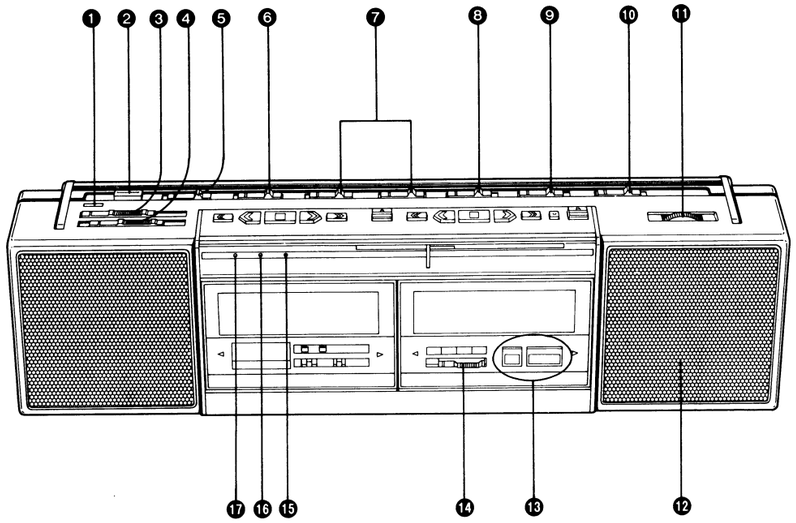
1. Insert a cassette to Tape 2, and set this unit to the playback mode.
2. Set the TPS/Blank Skip Switch to "2/ON".

Operation / Tape	TPS	Blank Skip
Tape 1	1/OFF	——
Tape 2	2/ON	2/ON

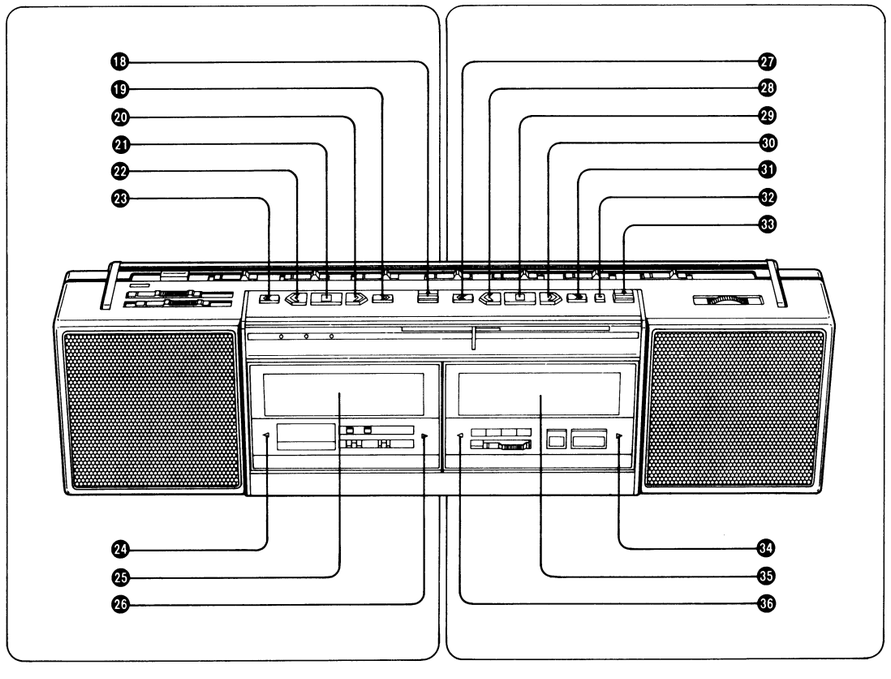
3. When a blank interval of more than 10 seconds is detected the mechanism will go into fast forward and playback will begin at the start of the next selection.
4. Set the TPS/Blank Skip Switch to "1/OFF" to release the Blank Skip Function.

Note:
The blank skip function may not work correctly with some pre-recorded tape, such as classical music where there are many low sound levels. In this case set the TPS/Blank Skip Switch to "1/OFF".

LOCATION OF CONTROLS AND COMPONENTS

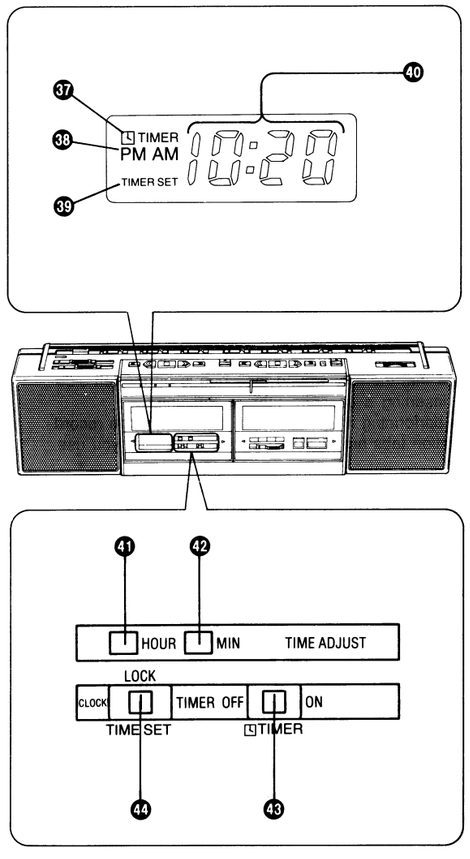


❶ Built-in Microphone (MIC)
❷ Power Switch (POWER)
❸ Tone Control (TONE)
❹ Volume Control (VOLUME)
❺ Timer Stand By Switch (TIMER STAND BY 2)
❻ TPS/Blank Skip Switch (TPS/BLANK SKIP 2)
❼ Tape Selectors (1 TAPE SELECTOR 2)
❽ Function Selector (SELECTOR)
❾ Mode Selector/Beat Proof Switch (MODE/BEAT PROOF)
❿ Band Selector (BAND)
⓫ Tuning Control (TUNING)
⓬ Speakers 10 cm (2.7Ω)
⓭ One Touch Dubbing Buttons (ONE TOUCH DUBBING)
⓮ Reverse Mode Selector (REVERSE MODE)
⓯ Record Indicator (RECORD)
⓰ FM Stereo Indicator (FM STEREO)
⓱ Power/Battery Check Indicator (POWER/BATT)



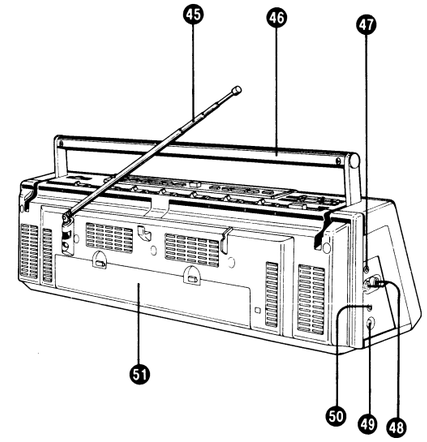
TAPE 1 CONTROLS

⓲ Eject Button (⏏ EJECT)
⓳ Fast Button (■» FAST TPS ▶▶)
⓴ Playback Button (❯ PLAY) [Forward]
㉑ Stop/Dubbing Stop Button (■ STOP/DUBBING STOP)
㉒ Playback Button (❮ PLAY) [Reverse]
㉓ Fast Button («■ FAST ◀◀ TPS)
㉔ Reverse Indicator (REV)
㉕ Cassette Compartment
㉖ Forward Indicator (FWD)



TAPE 2 CONTROLS

㉗ Fast Button («■ FAST ◀◀ TPS)
㉘ Playback Button (❮ PLAY) [Reverse]
㉙ Stop Button (■ STOP)
㉚ Playback Button (❯ PLAY) [Forward]
㉛ Fast Button (■» FAST TPS ▶▶)
㉜ Record Stand By Button (● REC STAND BY)
㉝ Eject Button (⏏ EJECT)
㉞ Forward Indicator (FWD)
㉟ Cassette Compartment
㊱ Reverse Indicator (REV)



BATTERY SERVICE LIFE

UM-2 (C-size) Batteries
Approx. 13 hours of recording (EIAJ)
Approx. 9.5 hours of playback (EIAJ) with volume set at 8.5 position

The above battery service life is measured according to the conditions set forth by EIAJ (Electronic Industries Association of Japan). As the battery service life varies with the method of operation and environmental conditions, use these values as reference.

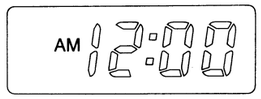
㊲ Timer Indicator (TIMER)
㊳ PM-AM Indicators (PM-AM)
㊴ Timer Set Indicator (TIMER SET)
㊵ Clock Display
㊶ Hour Set Button (HOUR)
㊷ Minute Set Button (MIN)
㊸ Timer Switch (TIMER)
㊹ Time Set Selector (TIME SET)

㊺ Telescopic Antenna
㊻ Handle
㊼ Microphone Jack (EXT MIC) 0.4 mV/220~600Ω
㊽ Line Input Jacks (LINE IN) 200 mV/40 kΩ
㊾ DC Input Jack (DC IN 9 V ⊖⊸⊕)
㊿ Headphones Jack (PHONES) M3, ∅3.5, 32Ω
(51) Battery Compartment

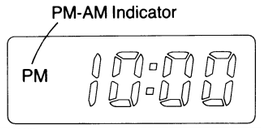
OPERATING INSTRUCTION OF CLOCK

TO SET THE CORRECT TIME

1. Insert an "AA" size battery into the Battery Compartment.
   ●The Clock Display will display "AM 12:00".



2. Set the Time Set Selector to "CLOCK".
3. Press and hold the Hour Set Button until the correct hour appears on the Clock Display.
   ●Observe the PM-AM Indicators.



   ●To forward the displayed time hour (minute) by hour (minute), press the Button repeatedly.
4. Press and hold the Minute Set Button until the correct minute appears on the Clock Display.
   ●Note that the minute "00" display appears following "59", but the hour display is not changed.
5. Set the Time Set Selector to "LOCK".
   ●In this position even if the Hour (Minute) Button is mistakenly pressed, the Clock Display will not be changed.

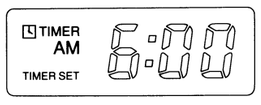
The correct time can usually be obtained by listening for time checks on the radio or from telephone time services.

USING THE TIMER

■ Using as an Alarm Unit

EX1) Waking up at 6:00 AM with the tape (Timer Playback)

1. Confirm the present time.
2. Set the Time Set Selector to "TIMER".
   ●The Time Set Indicator will appear.
3. Press the Hour Set Button and Minute Set Button to set to "AM 6:00".
4. Set the Timer Switch to "ON".
   ●The Timer Indicator will appear.



5. Set the Time Set Selector to "LOCK".
   ●The Clock Display will be changed to the present time.
6. Insert the cassette tape in Tape 2.
   Set the desired playback mode and then set to the stop mode.
7. Set the Power Switch to "OFF/TIMER".
8. Set the Timer Stand By Switch to "PLAY".
9. At the pre-set time, the forward playback will start in Tape 2. After about 59 minutes, the power will be turned off automatically.
   ●If you want to cancel the timer operation, press the Tape 2 Stop Button to stop the tape travel, and set the Timer Switch to "OFF".

EX2) Waking up at 6:00 AM with the radio

1. Follow the procedure described in steps 1–5 of "EX1".
2. Receive the desired broadcast.
3. Set the Power Switch to "OFF/TIMER".
4. Set the Timer Stand By Switch to "OFF".
5. At the pre-set time, the broadcast will be received. After about 59 minutes, the power will be turned off automatically.
   ●If you want to cancel the timer, set the Timer Switch to "OFF".

■ Timer Recording (TAPE 2)

●When using the timer recording, be sure to insert the cassette into Tape 2. The timer recording does not function in Tape 1.
●The timer recording (playback) functions are designed to automatically start from the forward direction. As a result, be sure that the fully wound tape hub is on the left side when inserting a cassette tape in the unit.
●When performing timer recording, confirm that the record prevention tabs are intact on the cassette tape you use.

1. Follow the procedure described in steps 1–5 of "EX1".
2. Receive the desired broadcast.
3. Set the Power Switch to "OFF/TIMER".
4. Set the Timer Stand By Switch to "RECORD".
5. At the pre-set time, the forward recording will be started. After about 59 minutes (if the used tape has more than 59 minutes long recording possibility, after tape travel reaches its end), the power will be turned off automatically.
   ●If you want to cancel the Timer Recording, press the Tape 2 Stop Button and set the Timer Switch to "OFF".

Notes:

●Note that it takes a few seconds for tape travel to start after power is applied with Timer Recording/Playback.
●After setting the time for the timer and the Time Set Selector if it is not set to "LOCK", during timer operations you can press the Hour Set Button and Minute Set Button by mistake, and the operation may stop.
●Following use, be sure to set the Timer Stand By Switch to "OFF". When the Timer Stand By Switch is left on "RECORD", if a tape with intact record prevention tabs is inserted in the unit and the Power Switch is set to "ON", the unit will enter the recording mode, and the tape's contents may be erased by mistake.
●After timer recording, remove the recorded cassette. If not, the timer recording will function again on the next day at the same pre-set time.

DISASSEMBLY INSTRUCTIONS

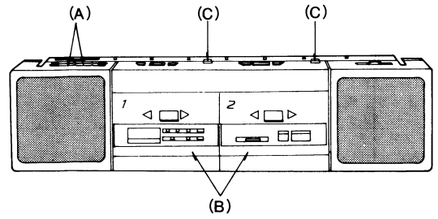


Fig. 1

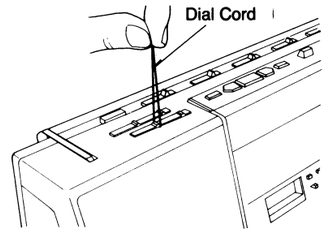


Fig. 2

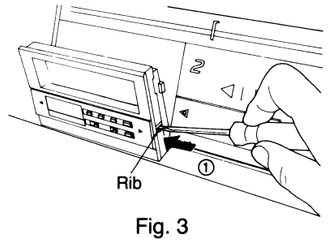


Fig. 3

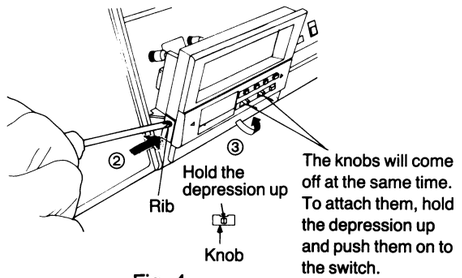

②
③
Hold the depression up
Rib
Knob
The knobs will come off at the same time. To attach them, hold the depression up and push them on to the switch.

Fig. 4

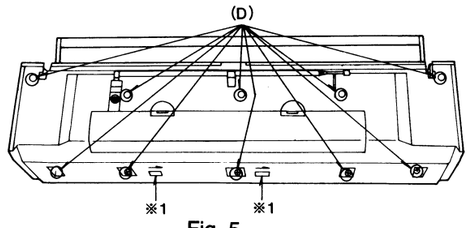


Fig. 5

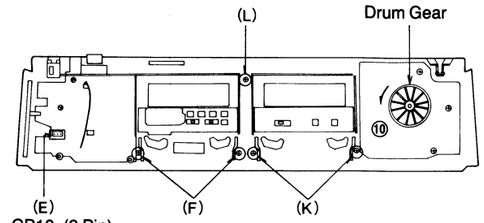


Fig. 6

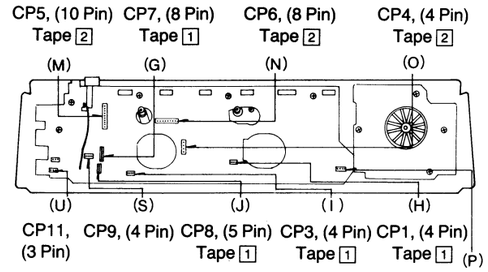


Fig. 7

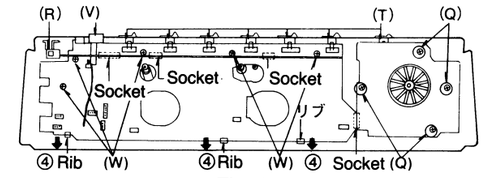


Fig. 8

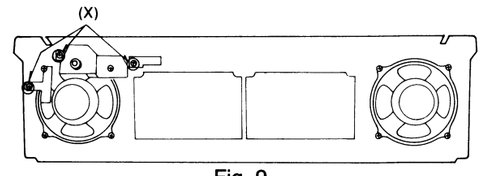


Fig. 9

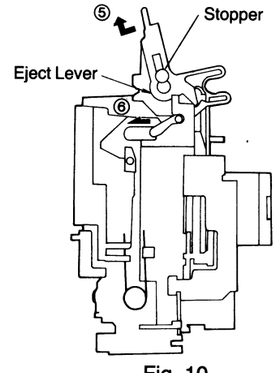


Fig. 10

▼ Be sure to fold at the (▼) mark so that mark is on the outside.

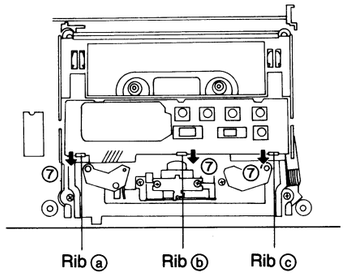


Fig. 11

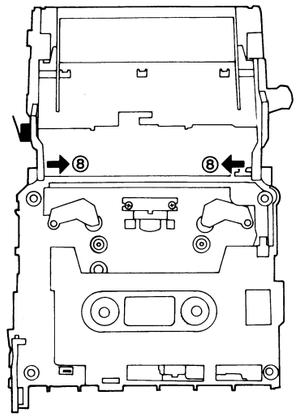


Fig. 12

Ref No.	Shown in Fig.—	To remove.—	Remove.—
1	1	Front Cabinet	Knob ..... (A)×2
	2		Remove the knob by used dial cord.
2	1		Cassette lid (Tape [1], [2]) ..... (B)×2
	3, 4		Push the stop/eject button tape [1] and tape [2]. Push the rib in the direction of arrows ① and ②. Remove the cassette lid in the direction of arrow ③.
3	1		Pull out the stop/eject button ..... (C)×2
4	5		Screw (3×35) mm ..... (D)×10
5	6		Socket (CP10) ..... (E)×1
6	6	Mechanism (Tape [1])	Screw (3×12) mm ..... (F)×2
7	7		Socket (CP7) ..... (G)×1
8	7		Socket (CP1) ..... (H)×1
9	7		Socket (CP3) ..... (I)×I
10	7		Socket (CP8) ..... (J)×1
11	6	Mechanism (Tape [2])	Screw (3×12) mm ..... (K)×2
12	6		Screw (3×20) mm ..... (L)×1
13	7		Socket (CP5) ..... (M)×1
14	7		Socket (CP6) ..... (N)×1
15	7		Socket (CP4) ..... (O)×1
16	7		Socket (CP2) ..... (P)×1

Ref No.	Shown in Fig.—	To remove.—	Remove.—
17	8	Tuner Circuit Board	Screw (3×12) mm ..... (Q)×4
18	8	Mechanism Control Circuit Board	Remove the angle ..... (R)×1
19	7		Socket (CP9) ..... (S)×1
20	8		Pull out the mechanism control circuit board
21	8	Main Circuit Board	Knob ..... (T)×7
22	7		Socket (CP11) ..... (U)×1
23	8		Button ..... (V)×1
24	8		Screw (3×12) mm ..... (W)×5
25	8		Push the rib in the direction of arrow ④ and remove the main circuit board.
26	9	Dial Chassis	Screw (3×12) mm ..... (X)×3
27	10	Eject Lever	Pull the upper part of the lever in the direction of arrow ⑤ and disconnect it from the projection. Push the boss on the bottom part of the lever in the direction of arrow ⑥ and remove the entire lever.
28	11	LCD Block	Push rib ⓐ in the direction of the arrow and lift up the marked part of the LCD block circuit board. Push ribs ⓑ and ⓒ in the direction of the arrows ⑦ and remove the LCD block. Remove the reverse mode block in the same way.
29	12	Cassette Holder	To remove the cassette holder, squeeze the base in the directions indicated by the arrows ⑧ in the figure.

(※1) When the tape is caught in the pinch roller, etc. release the tape by tuning the pulley on the motor with the screwdriver in the direction of the arrow. (Fig. 5)

HOW TO REPLACE THE DIAL POINTER

To secure the dial pointer, insert it in the square hole in the front cabinet as shown in the figure, and turn it in the direction of the arrow ⑨.

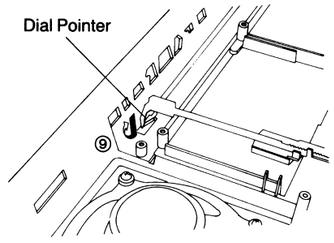


Fig. 13

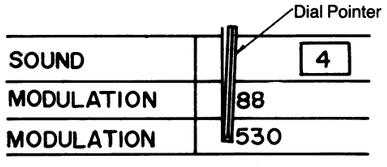


Fig. 15

Line up the rack with the rail and attach it.

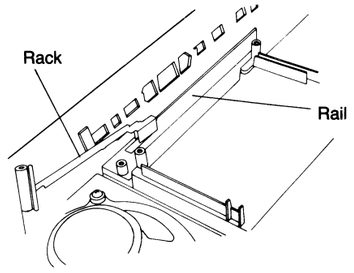


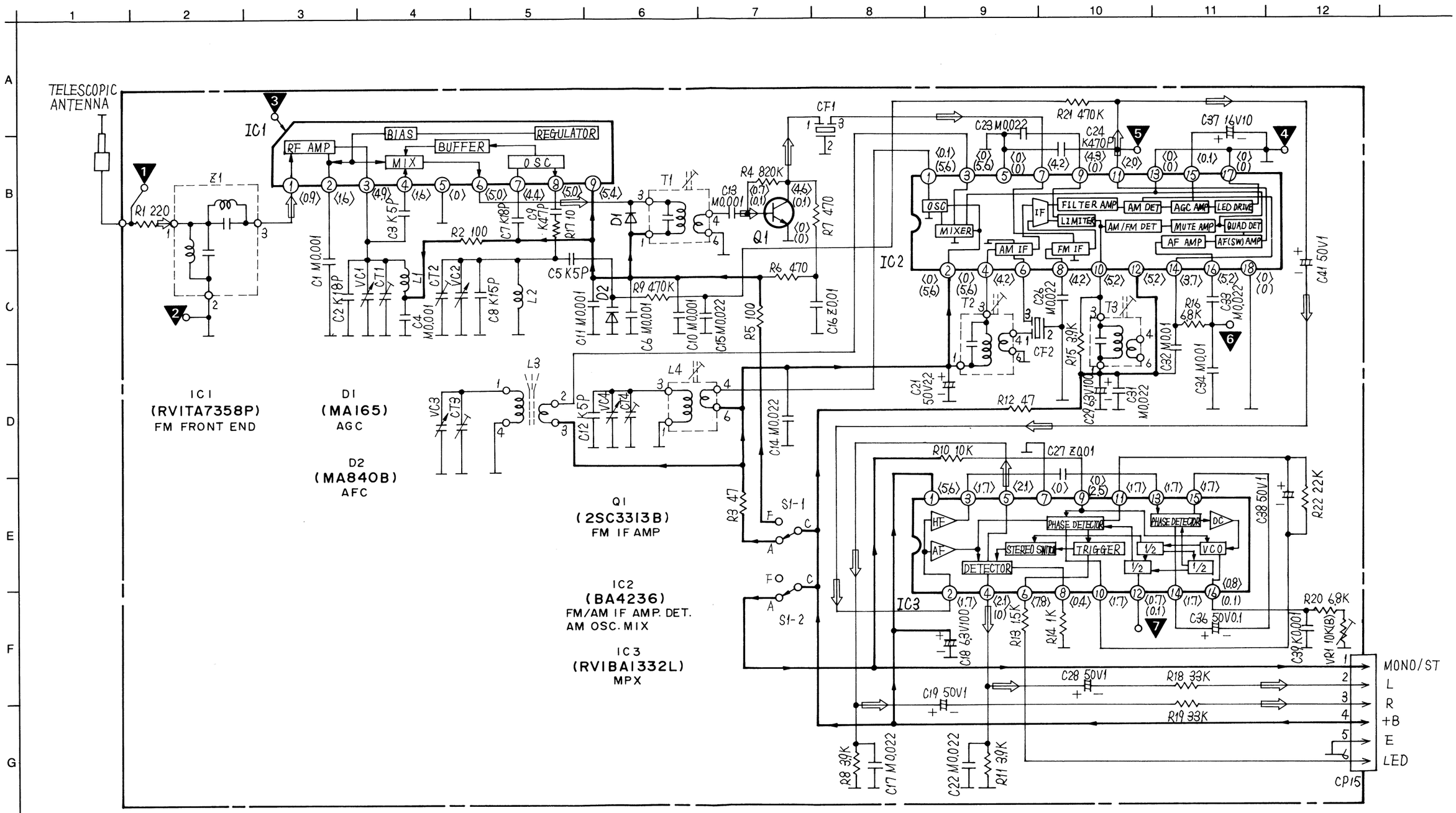
Fig. 14

When attaching the front cabinet.

1. Turn the Drum Gear all the way in the direction of the arrow ⑩. (See Fig. 6)
2. Attach the front cabinet after setting the dial pointer as shown in Fig. 15.

Radio (FM) Signal Line
+(B) Voltage Line

SCHEMATIC DIAGRAM (Tuner Circuit Section)



Notes:

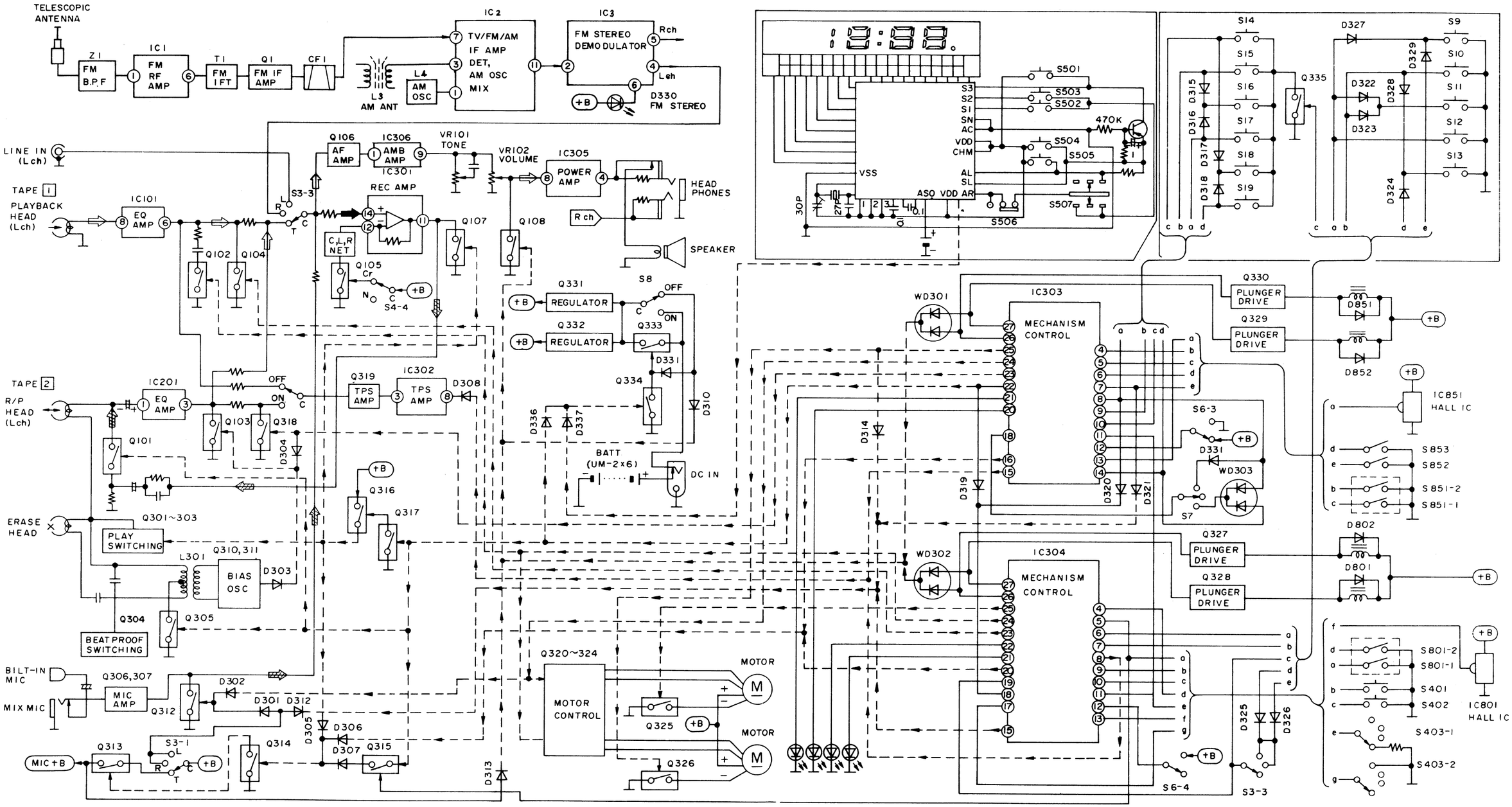
1. S1-1, S1-2: Band switch in "AM" position. (F...FM, A...AM)
2. VR1: FM VCO adjustment VR.
3. The mark (▼) shows test point. e.g. ▼=Test point 1.
4. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
   < >...FM position, ( )...AM position.
5. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes.

One type number is used for supply parts number and production parts number which they are identical.

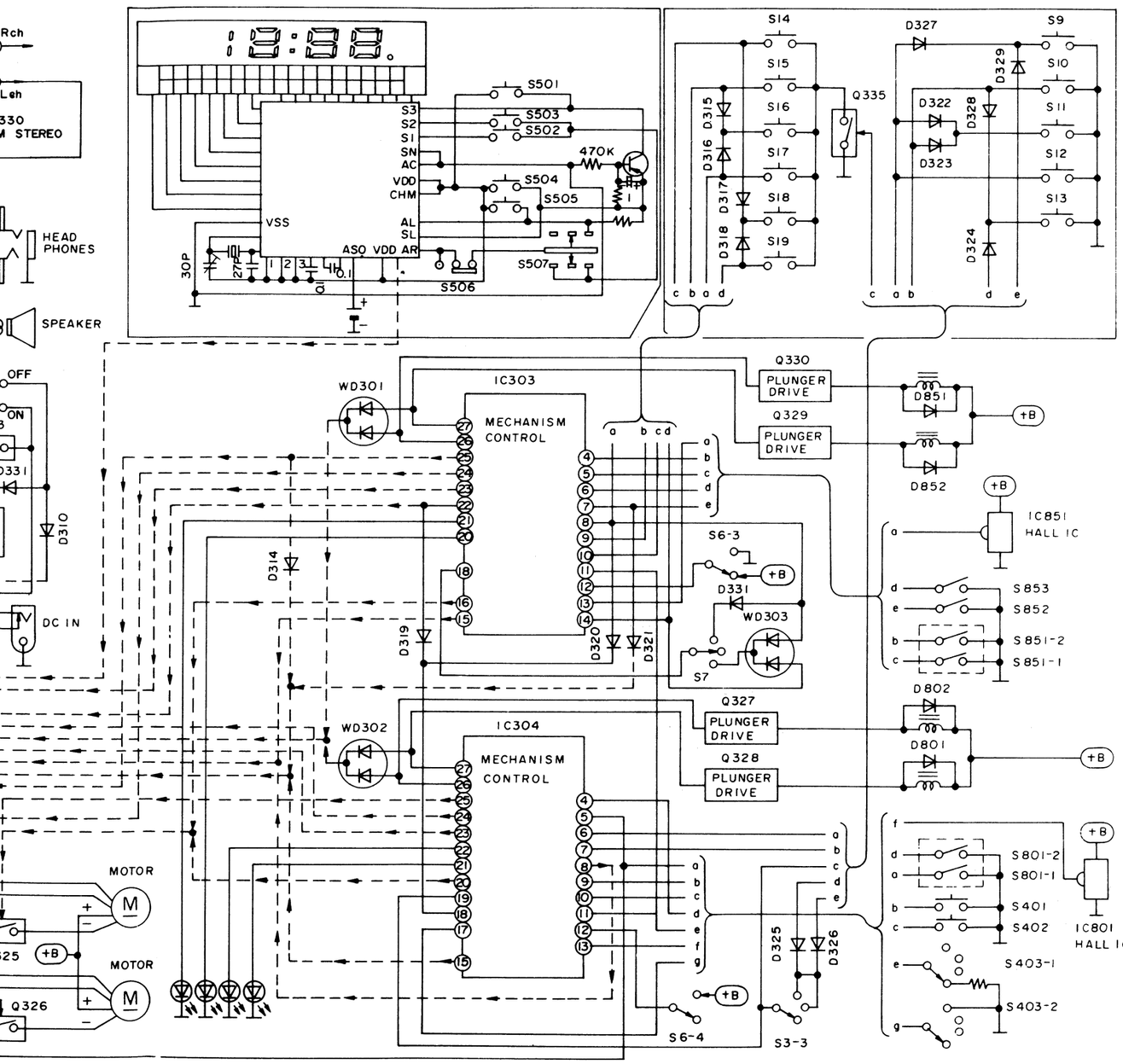
e.g. Q1
2SC2412NRTB, LNSTB — Production parts number
[2SC2412] — Supply parts number

- The supply parts number is described alone in the replacement parts list.
- This schematic diagram may be modified at any time with the development of new technology.

BLOCK DIAGRAM



BLOCK DIAGRAM

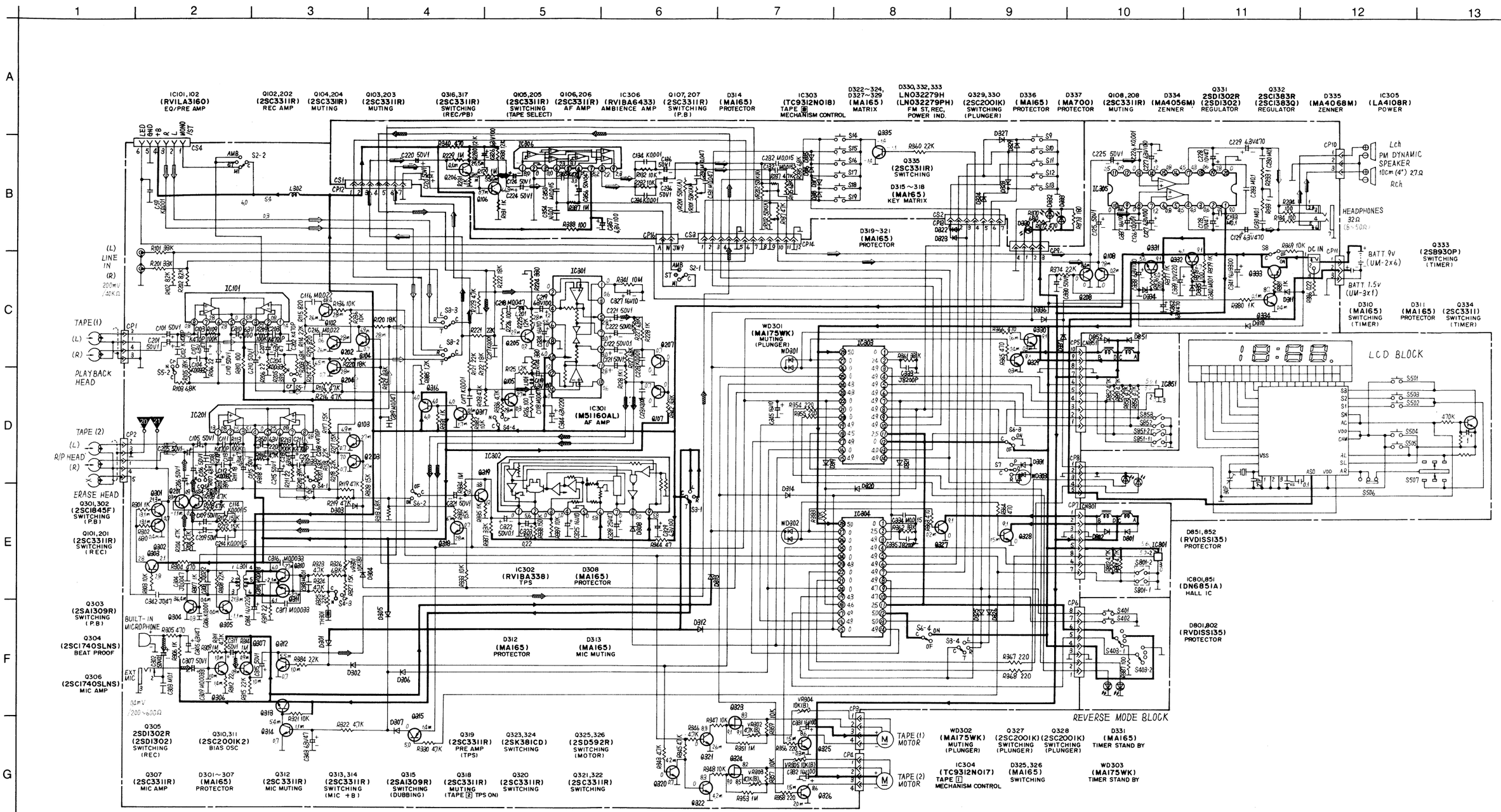


ELECTRICAL PARTS LIST (Main & Tuner Section)

Ref. No.	Part. No.	Part Name & Description
		INTEGRATED CIRCUITS
IC1	**RVITA7358P**	Integrated Circuit (FM FRONT END)
IC2	**BA4236L**	IC, (FM/AM IF AMP, DET, AM OSC, MIX)
IC3	**RVIBA1332L**	Integrated Circuit (FM MPX)
IC101,201	**RVILA3160**	Integrated Circuit (EQ/PRE AMP)
IC301	**M51160AL**	Integrated Circuit (AF AMP)
IC302	**RVIBA338**	Integrated Circuit (TPS)
IC303	**TC9312N018**	Integrated Circuit (TAPE [2] MECHANISM CONTROL)
IC304	**TC9312N017**	Integrated Circuit (TAPE [1] MECHANISM CONTROL)
IC305	**LA4108R**	Integrated Circuit (POWER AMP)
IC306	**RVIBA6433**	Integrated Circuit
		TRANSISTORS
Q1	**2SC3313B**	Transistor, (FM IF AMP)
Q101,102,103,104,105,106, 107,108,201,202,203,204,205, 206,207,208,307,312,313,314, 316,317,318,319,320,321,322, 334,335	**2SC3311R**	Transistor (SWITCHING, REC AMP, MUTING, LINE AMP, MIC AMP, PRE AMP)
Q301,302	**2SC1845F**	Transistor (P.B SWITCHING)
Q303,315	**2SA1309R**	Transistor (P.B SWITCHING, DUBBING SWITCHING)
Q304,306	**2SC1740SLNS**	Transistor (BEAT PROOF, MIC AMP)
Q305,331	**2SD1302R**	Transistor (REC SWITCHING, REGULATOR)
Q310,311	**2SC2001K2**	Transistor (BIAS OSC)
Q323,324	**2SK381CD**	Transistor (SWITCHING)
Q325,326	**2SD592R**	Transistor (MOTOR SWITCHING)
Q327,328,329,330	**2SC2001K**	Transistor (PLUNGER SWITCHING)
Q332	**2SC1383Q**	Transistor (REGULATOR)
Q333	**2SB930P**	Transistor (TIMER SWITCHING)
		DIODES & RECTIFIERS
D1	**MA165**	Diode (AGC)
D2	**MA840B**	Diode (AFC)
D301,302,303,304,305,306, 307,308,310,311,312,313,314, 315,316,317,318,319,320,321, 322,323,324,325,326,327,328, 329,331,336	**MA165**	Diode (PROTECTOR, SWITCHING, MIC MUTING, KEY MATRIX, MATRIX)
D330,332, 333	**LN032279PH**	Diode (FM ST)
D334	**MA4056M**	Diode (ZENNER)
D335	**MA4068M**	Diode (ZENNER)
D337	**MA700**	Diode (PROTECTOR)
WD301,302,303	**MA175WK**	Diode (PLUNGER MUTING, TIMER STAND BY)
		COILS
L2	**RLD4Y53**	Coil, FM OSC.
L3	**RLF2V53**	Coil, AM ANT
L4	**RL02B105**	Coil, AM OSC
L101,201	**RLQZB102K**	Choke Coil
L301	**RL08R1**	Oscillator Coil
L302	**RLQZB101K**	Choke Coil
		TRANSFORMERS
T1,3	**RLI4B153**	I.F.T (FM)
T2	**RLI2B458**	I.F.T (AM)
		VARIABLE CAPACITORS
VC1,2,3,4 (CT1,2,3,4)	**RCV4LC2V2K**	Variable Capacitor
		VARIABLE RESISTORS
VR1	**EVND4AA00B14**	VC0 Adjustment VR, 10 kΩ (B)
VR101,201	**EWASC2C95A54**	Tone, Control VR, 50 kΩ (A)
VR102,202	**EWASE2C95A54**	Volume Control VR, 50 kΩ (A)
VR301,304,305	**EVND4AA00B14**	Rec bias, Tape Speed Adj. VR (High Speed/10 kΩ, B)
VR302,303	**EVND4AA00B53**	Tape Speed Adj. VR (Nor. Speed/ 5 kΩ, B)
		CERAMIC FILTERS
CF1	**RVF107WMZ**	Ceramic Filter
CF2	**RVFSFU455B**	Ceramic Filter
		THERMISTOR
TH301	**RRT302**	Thermistor
		FILTER
Z1	**RXABPMB6A**	B.P.F
		SWITCHES
S1,3	**RSS3D21Z**	Slide Switch (BAND SELECTOR, FUNCTION SELECTOR)
S2	**RSS3B38Z**	Slide Switch (FM MODE/BEAT PROOF)
S4,6	**RSS2D24Z**	Slide Switch (TAPE SELECTOR/ TAPE [2], TPS/BLANK SKIP)
S5	**RSS2B57Z**	Slide Switch (TAPE SELECTOR/ TAPE [1])
S7	**RSS3A15Z**	Slide Switch (Timer)
S8	**RSH2B38Z**	Push Switch (POWER)
S9,12,13,14,15,16,17,18,19	**EVQQS405K**	Slide Switch [TAPE [1] FF (REV), PLAY (FWD), FF (FWD), TAPE [2] FF (REV), PLAY (REV), STOP, PLAY (FWD), FF (FWD), REC STAND BY]
S10,11	**RSH1A61Z**	Push Switch [PLAY (REV), STOP] (TAPE [1])
S801,851	**RSH1B12Z**	Push Switch
S852,853	**RSH1A46Z**	Push Switch (TAPE [2])
		JACKS
J1	**RJJ1D20Y**	Jack, Mic
J2,3	**RJF1096Z**	Jack, Line IN
J4	**RJJ1D27Z**	Jack, Headphones
J5	**RJJ97Y**	Jack, DC IN

RX-FW50
RX-FW50

SCHEMATIC DIAGRAM (MAIN SECTION)

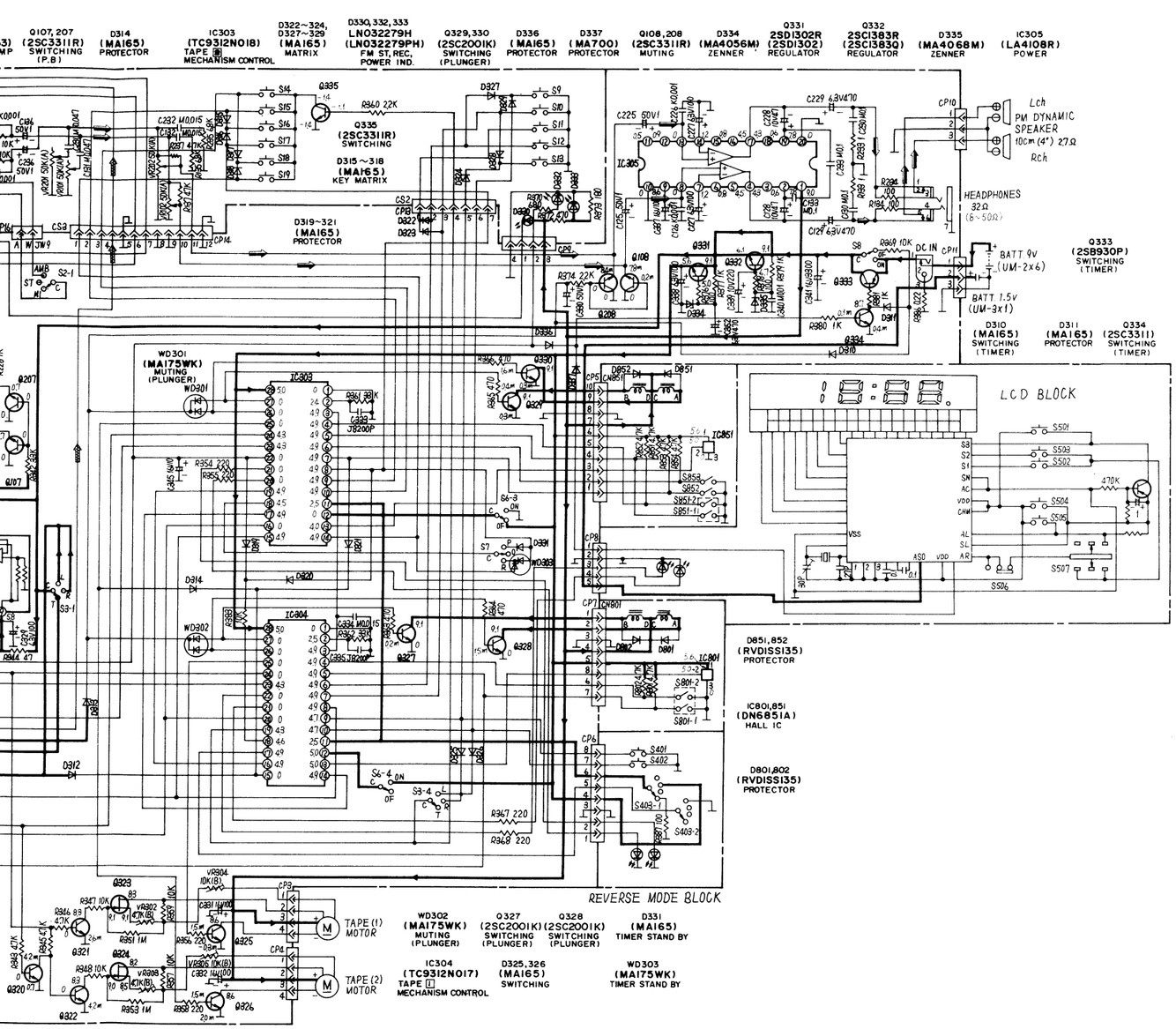


Tape (RECORD) Signal Line
Tape (PLAY) Signal Line (TAPE 1)
Tape (PLAY) Signal Line (TAPE 2)
Main Signal Line
Radio (FM) Signal Line
+(B) Voltage Line

Notes:

1. S2-1, S2-2:
2. S3-1~S3-4:
3. S4-1~S4-4:
4. S5-1, S5-2:
5. S6-1~S6-4:
6. S7:
7. S8:
8. S9:
9. S10:
10. S11:
11. S12:
12. S13:
13. S14:
14. S15:
15. S16:
16. S17:
17. S18:
18. S19:
19. S401:
20. S402:
21. S403-1, S403-2:
22. S502:
23. S503:
24. S506:
25. S507:
26. S801-1, S801-2:
27. S851-1, S851-2:

SCHEMATIC DIAGRAM (MAIN SECTION)


6 7 8 9 10 11 12 13 14 15 16 17 18 19
Q107, 207 (2SC3311R) SWITCHING (P.B)
D314 (MA165) PROTECTOR
IC303 (TC9312N018) TAPE MECHANISM CONTROL
D322~324, D327~329 (MA165) MATRIX
D330, 332, 333 LN032279H (LN032279PH) FM ST, REC, POWER IND.
Q329, 330 (2SC2001K) SWITCHING (PLUNGER)
D336 (MA165) PROTECTOR
D337 (MA700) PROTECTOR
Q108, 208 (2SC3311R) MUTING
D334 (MA4056M) ZENNER
Q331 2SD1302R (2SD1302) REGULATOR
Q332 2SC1383R (2SC1383Q) REGULATOR
D335 (MA4068M) ZENNER
IC305 (LA4108R) POWER
Lch FM DYNAMIC SPEAKER 10cm (4") 27Ω Rch
HEADPHONES 32Ω (8~50Ω)
BATT 9V (UM-2x6)
BATT 1.5V (UM-3x1)
Q333 (2SB930P) SWITCHING (TIMER)
D310 (MA165) SWITCHING (TIMER)
D311 (MA165) PROTECTOR
Q334 (2SC3311) SWITCHING (TIMER)
LCD BLOCK
D315~318 (MA165) KEY MATRIX
D319~321 (MA165) PROTECTOR
WD301 (MA175WK) MUTING (PLUNGER)
WD302 (MA175WK) MUTING (PLUNGER)
D851, 852 (RVDISSI35) PROTECTOR
IC801, 851 (DN6851A) HALL IC
D801, 802 (RVDISSI35) PROTECTOR
REVERSE MODE BLOCK
TAPE (1) MOTOR
TAPE (2) MOTOR
Q327 (2SC2001K) SWITCHING (PLUNGER)
Q328 (2SC2001K) SWITCHING (PLUNGER)
D331 (MA165) TIMER STAND BY
IC304 (TC9312N017) TAPE MECHANISM CONTROL
D325, 326 (MA165) SWITCHING
WD303 (MA175WK) TIMER STAND BY

Notes:

1. S2-1, S2-2: FM Mode/beat proof switch in "MONO/I" position. (MI...MONO/I, ST...STEREO/II, AMB...AMBIENCE/II)
2. S3-1~S3-4: Function switch in "TAPE" position. (T...TAPE, R...RADIO, L...LINE/CD)
3. S4-1~S4-4: Tape select switch in "NORMAL" position. (TAPE 2) [N...NORMAL, Cr...CrO_2/METAL (P.B)]
4. S5-1, S5-2: Tape select switch in "NORMAL" position (TAPE 1) (N...NORMAL, Cr...CrO_2/METAL)
5. S6-1~S6-4: TPS/Blank skip switch in "1/OFF" position (1...1/OF, 2...2/ON)
6. S7: Timer stand by switch in "OFF" position (R...RECORD, O...OFF, P...PLAY)
7. S8: Power switch in "OFF/TIMER" position (1...OF/TIMER, 2...ON)
8. S9: FF (REV) switch. (TAPE 1)
9. S10: Play (REV) switch. (TAPE 1)
10. S11: Stop switch (TAPE 1)
11. S12: Play (FWD) switch. (TAPE 1)
12. S13: FF (FWD) switch. (TAPE 1)
13. S14: FF (REV) switch. (TAPE 2)
14. S15: Play (REV) switch. (TAPE 2)
15. S16: Stop switch (TAPE 2)
16. S17: Play (FWD) switch (TAPE 2)
17. S18: FF (FWD) switch (TAPE 2)
18. S19: Rec stand by switch (TAPE 2)
19. S401: High speed dubbing switch
20. S402: Normal speed dubbing switch
21. S403-1, S403-2: Reverse mode switch in "⇄" position. (S...⇄, R...⇀, EP...⇉, 2EP...∞)
22. S502: Hour set switch.
23. S503: Minute set switch.
24. S506: Timer switch in "OFF" position (1...OFF, 2...ON)
25. S507: Timer set switch in "LOCK" position (NT...CLOCK, L...LOCK, OT...ON Time)
26. S801-1, S801-2: Play switch (TAPE 1). FF/REW switch (TAPE 1).
27. S851-1, S851-2: Play switch (TAPE 2). FF/REW switch (TAPE 2).
28. S852: Record INH switch. (FWD)
29. S853: Record INH switch. (REV)
30. VR101, 201: Tone control VR
31. VR102, 202: Volume control VR
32. VR301: Rec bias adjustment VR
33. VR302: Normal speed adjustment VR
34. VR303: Normal speed adjustment VR
35. VR304: High speed adjustment VR
36. VR305: High speed adjustment VR
37. The mark (▼) shows test point e.g. ▼=test point 1.
38. Battery current: No signal ..... 110 mA
    Maximum output (radio) ..... 750 mA
    Maximum output (tape) ..... 1000 mA
39. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
    No mark...Playback
40. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes.
    One type number is used for supply parts number and production parts number which they are identical.

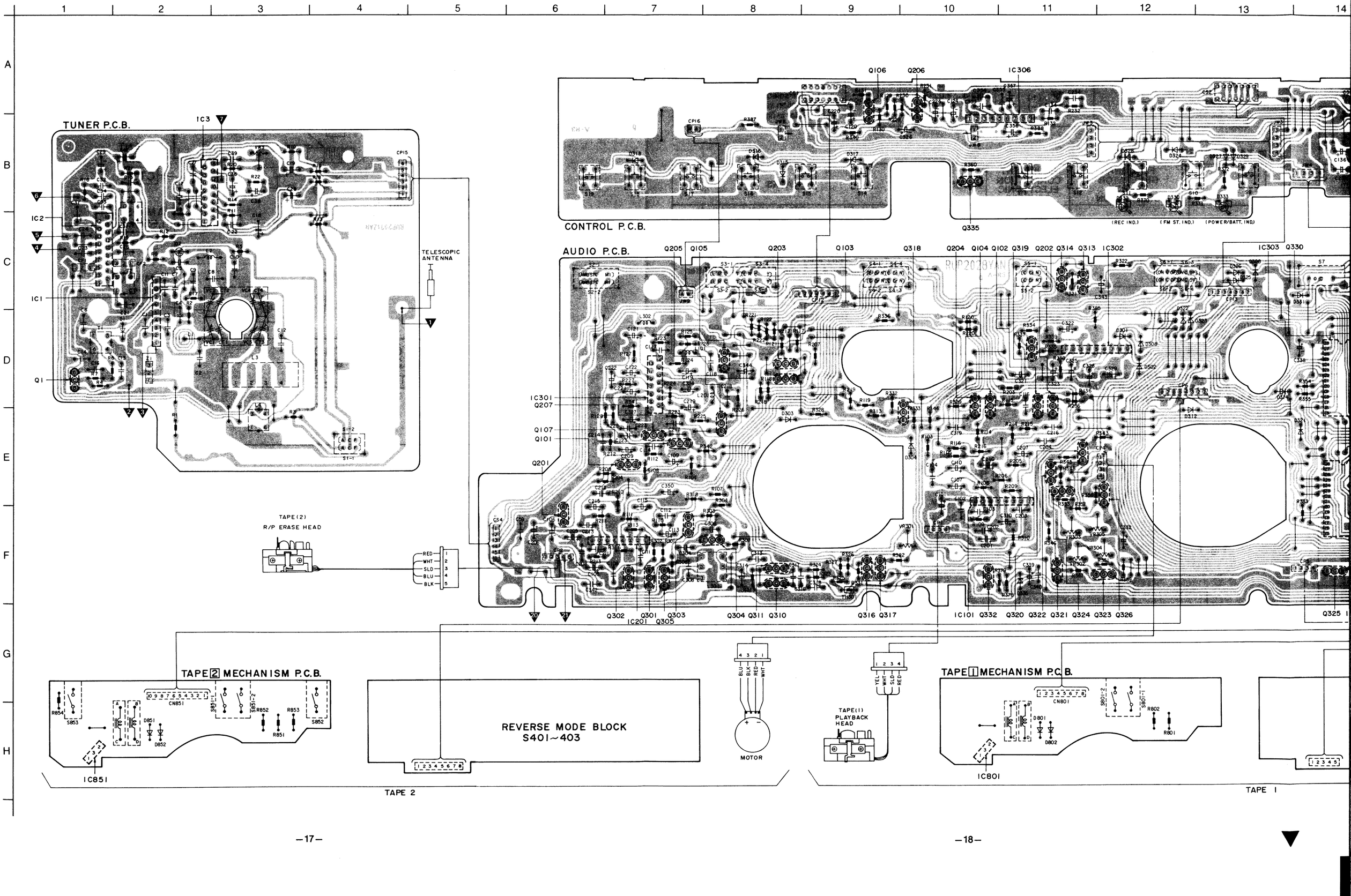
    e.g. Q1

    2SC2412NRTB, LNSTB ← Production parts number
    [2SC2412] ← Supply parts number

- The supply parts number is described alone in the replacement parts list.
- This schematic diagram may be modified at any time with the development of new technology.

▼

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

6 7 8 9 10 11 12 13 14 15 16 17 18 19

CONTROL P.C.B.

(REC IND.) (FM ST. IND.) (POWER/BATT. IND.)

AUDIO P.C.B.

L ch PM DYNAMIC SPEAKER 10cm (4") 2.7Ω

R ch PM DYNAMIC SPEAKER 10cm (4") 2.7Ω

BRN BLU WHT

MODE BLOCK S401~403

MOTOR

TAPE(1) PLAYBACK HEAD

TAPE 1 MECHANISM P.C.B.

IC801

LCD BLOCK S501~507

MOTOR

DC IN

BATT 3V (UM-3×1)

BATT 3V (UM-2×6)

TAPE 1

IC1 IC2 IC3 IC101, 201 IC301 IC302 IC303, 304 IC305 IC306

Q1, 303, 315 Q332 Q323, 324 Q333 Q301, 302 305, 310, 311 325~331

Q101~108, 201~208, 304, 306, 307, 312~314, 316~322, 334, 335

D1, 301~308, 310~329 331, 336, 337 D2 D334, 335 WD301~303

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum.	5. Set power source voltage to 9 V DC.
2. Set tape selector switch to normal.	6. Output of signal generator should be no higher than necessary to obtain an output reading.
3. Set band switch to AM or FMST.	
4. Set function selector to radio.	

■ AM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		AM-IF ALIGNMENT					
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kHz 30% Mod. at 400Hz	Point of non-interference. (on/ about 600kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
		AM-RF ALIGNMENT					
(2)	AM	〃	511kHz	Tuning capacitor fully closed.	〃	L4 (AM OSC Coil)	〃
(3)	AM	〃	1,650kHz	Tuning capacitor fully open.	〃	CT4 (AM OSC Trimmer)	〃
(4)	AM	〃	550kHz	Tune to signal.	〃	(*1) L3 (AM ANT Coil)	Adjust for maximum output. Adjust L3 by moving coil bobbin along ferrite core.
(5)	AM	〃	1,500kHz	〃	〃	CT3 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).

(*1) Cement antenna bobbin with wax after completing alignment.

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001μF to test point ③. Negative side to test point ②.	10.7MHz (SWP.)	Point of non-interference. (on/ about 90MHz)	Connect vert. amp. of scope to test point ⑤. Negative side to test point ④.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 1.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 2.)
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point ① through FM dummy antenna. Negative side to test point ②.	86.2MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2 (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		109.2MHz	Variable capacitor fully open.	〃	CT2 (FM OSC Trimmer)	〃
(5)	FM		106MHz	〃	〃	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(5).

(*2) Three output responses will be present; proper tuning is the center frequency.

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98MHz, 60dB (CW) Connect to test point ① through FM dummy antenna. Negative side to test point ②.	⑦...(+) ⑥...(−)	VR1	19kHz	Adjust VR1, for 19kHz (±100Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8kHz, −20dB)	SP OUT (AC voltmeter & Oscilloscope)	Maximum output	Azimuth screw (FWD, REV)	Playback mode Mode switch→STEREO (Refer to fig. 3.)
Rec Bias	——	▼...(+) ▼...(−)	Tape selector Normal...9.0±0.3 mV Metal...12.0 $^{+1.3}_{-0.7}$ mV	VR301	FM Model B.P→Stereo/II Tape selector→Normal Function selector→Radio (AM) (Refer to fig. 6.)

■ TAPE SPEED ADJUSTMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	REMARKS
Tape speed adjustment for high speed. (Tape 1 & 2)	QZZCWAT (3kHz) Use QZZCWC (1.5kHz) tape when using a wow/flutter meter.	SP OUT	VR304 (Tape 1) VR302 (Tape 2)	1. Set tape 1 and tape 2 to the hight speed mode by shorting the collector emitter on Q321 and Q322, respectively (short after setting in the play mode). (Refer to fig. 7.) Tape 1...6kHz±30Hz Tape 2...−60±30Hz for tape speed of tape 1. (Refer to Fig. 4 & 5 when using a wow/flutter meter)
Tape speed adjustment for normal speed. (Tape 1 & 2)	QZZCWAT (3kHz)	SP OUT	VR305 (Tape 1) VR303 (Tape 2)	1. Open Q321 and Q322. Set the tape speed to normal. (Refer to fig. 7.) 2. Tape 1...3kHz±15kHz Tape 2...−30±15Hz of the speed of tape 1. (Refer to Fig. 4 & 5 when using a wow/flutter meter)

Notes:

1. Adjust the tape speed by first adjusting the height speed. Do not adjust the height speed after adjusting the normal speed. (The normal speed changes if the height speed is adjusted afterwards)
2. Adjust the tape advance speed in the following order: tape 2 height, normal speed; tape 1 height, normal speed.

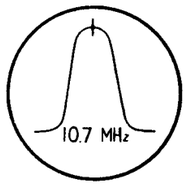


Fig. 1

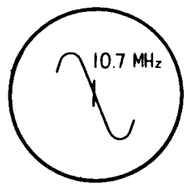


Fig. 2

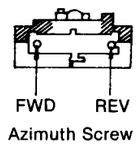


Fig. 3

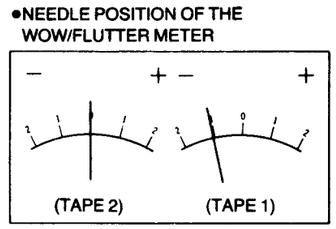
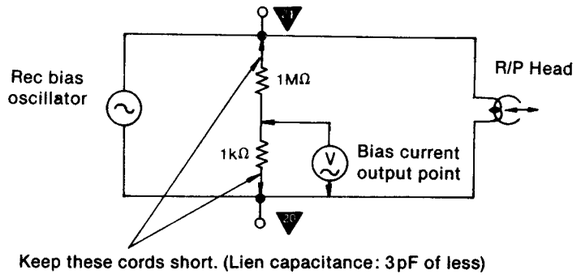


Fig. 4 Fig. 5



• In order not to influence the bias osillation, divide the voltage with 1MΩ and 1kΩ resistors, and measure the voltage across the 1kΩ resistor.

Fig. 6

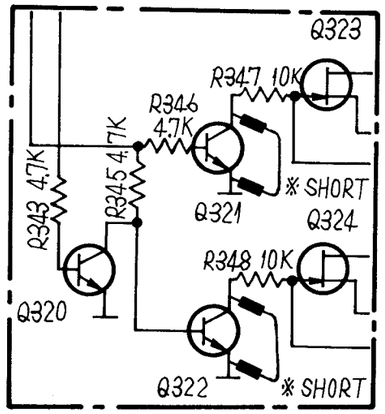


Fig. 7

■ TAPE ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8 kHz, −20 dB)	SP OUT (AC voltmeter & Oscilloscope)	Maximum output	Azimuth screw (FWD, REV)	Playback mode Mode switch→STEREO (Refer to fig. 3.)
Rec Bias	——	▼...(+) ▼...(−)	Tape selector Normal...9.0±0.3 mV Metal...12.0 $^{+1.3}_{-0.7}$ mV	VR301	FM Model B.P→Stereo/II Tape selector→Normal Function selector→Radio (AM) (Refer to fig. 6.)

■ TAPE SPEED ADJUSTMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	REMARKS
Tape speed adjustment for high speed. (Tape 1 & 2)	QZZCWAT (3kHz) Use QZZCWC (1.5kHz) tape when using a wow/flutter meter.	SP OUT	VR304 (Tape 1) VR302 (Tape 2)	1. Set tape 1 and tape 2 to the hight speed mode by shorting the collector emitter on Q321 and Q322, respectively (short after setting in the play mode). (Refer to fig. 7.) Tape 1...6kHz±30Hz Tape 2...−60±30Hz for tape speed of tape 1. (Refer to Fig. 4 & 5 when using a wow/flutter meter)
Tape speed adjustment for normal speed. (Tape 1 & 2)	QZZCWAT (3kHz)	SP OUT	VR305 (Tape 1) VR303 (Tape 2)	1. Open Q321 and Q322. Set the tape speed to normal. (Refer to fig. 7.) 2. Tape 1...3kHz±15kHz Tape 2...−30±15Hz of the speed of tape 1. (Refer to Fig. 4 & 5 when using a wow/flutter meter)

Notes:

1. Adjust the tape speed by first adjusting the height speed. Do not adjust the height speed after adjusting the normal speed. (The normal speed changes if the height speed is adjusted afterwards)
2. Adjust the tape advance speed in the following order: tape 2 height, normal speed; tape 1 height, normal speed.

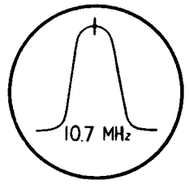


Fig. 1

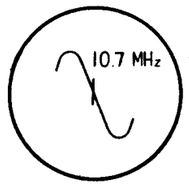


Fig. 2

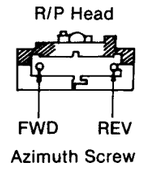


Fig. 3

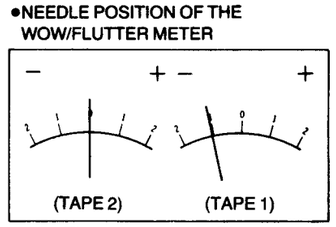
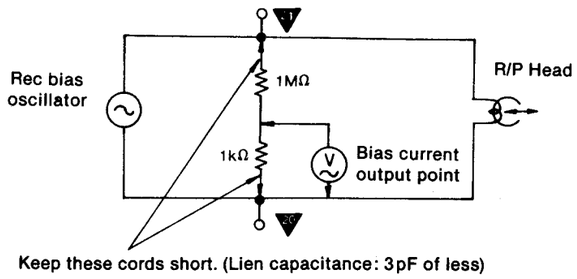


Fig. 4 Fig. 5



• In order not to influence the bias osillation, divide the voltage with 1MΩ and 1kΩ resistors, and measure the voltage across the 1kΩ resistor.

Fig. 6

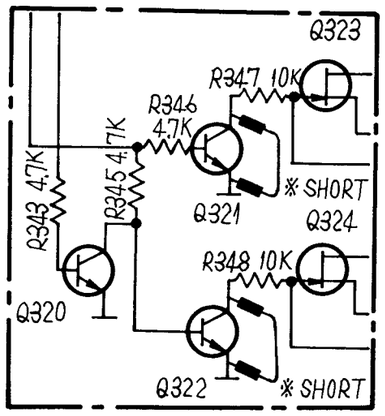


Fig. 7

■ ALIGNEMENT POINT

• Please refer to Circuit Board and Wiring Connection Diagram which is located test point.

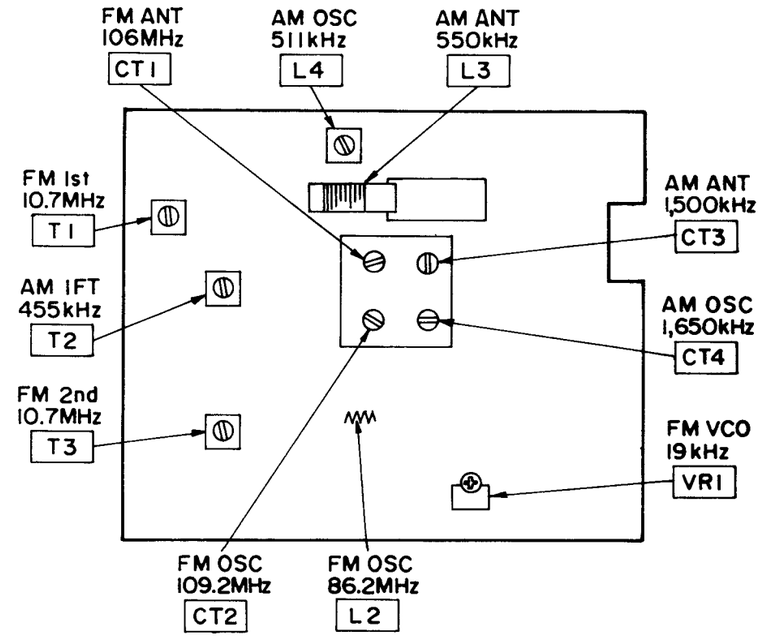


Fig. 8

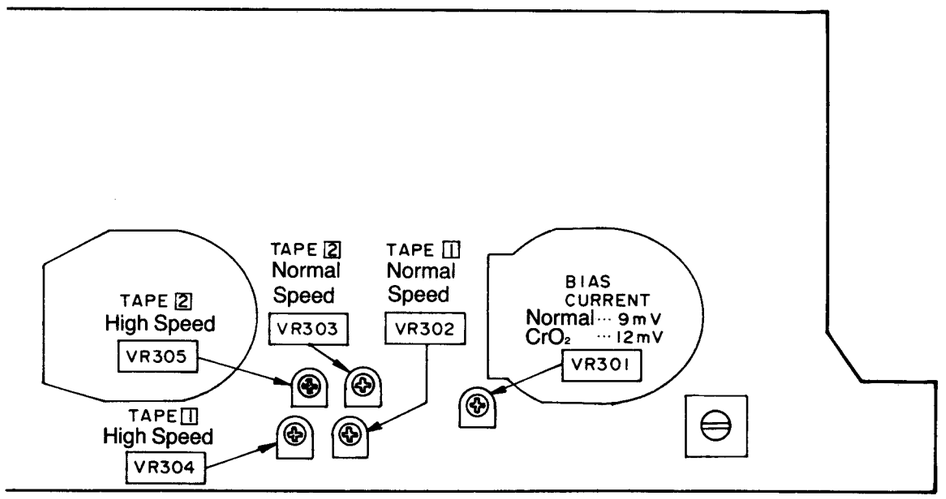


Fig. 9

EACH TERMINAL FUNCTION TC9312N017 (IC304) AND TC9312N018 (IC303)

- **TC9312N017, TC9312N018 (Mechanism Control)**

1) Termination

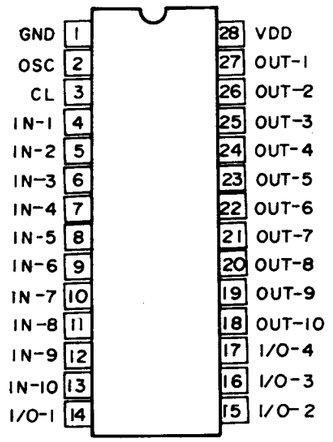


Fig. 1

M: 2.5V

Level	Blank Skip	TPS
L	○	○
M	×	○
H	×	×

Fig. 2

2) Block Diagram

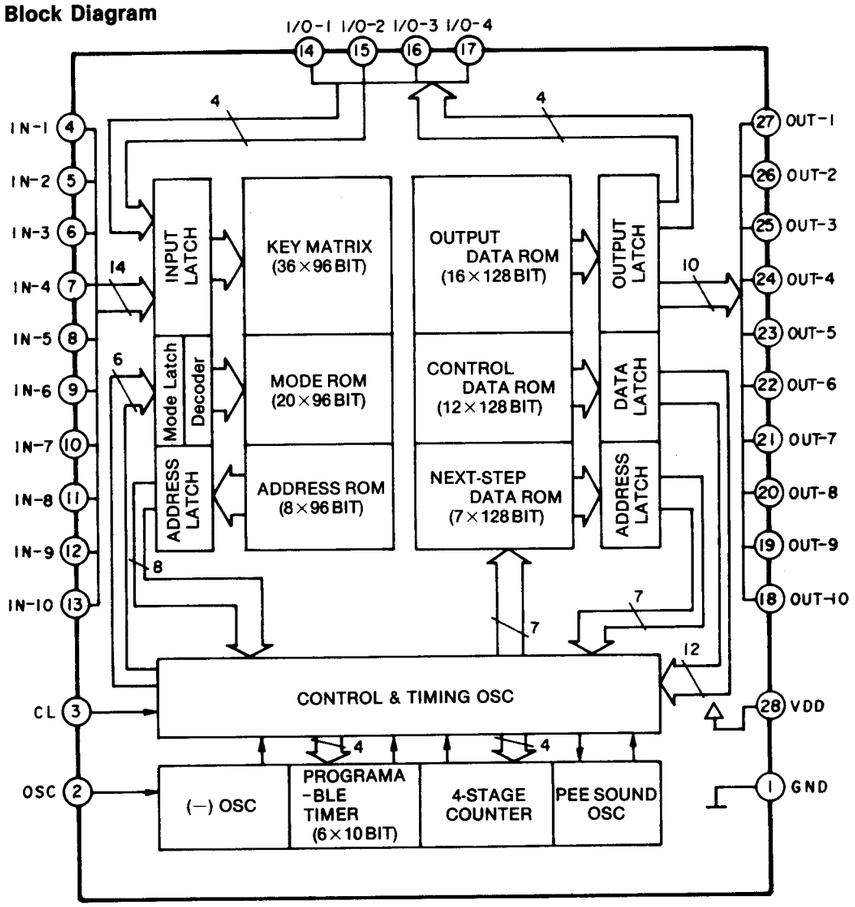
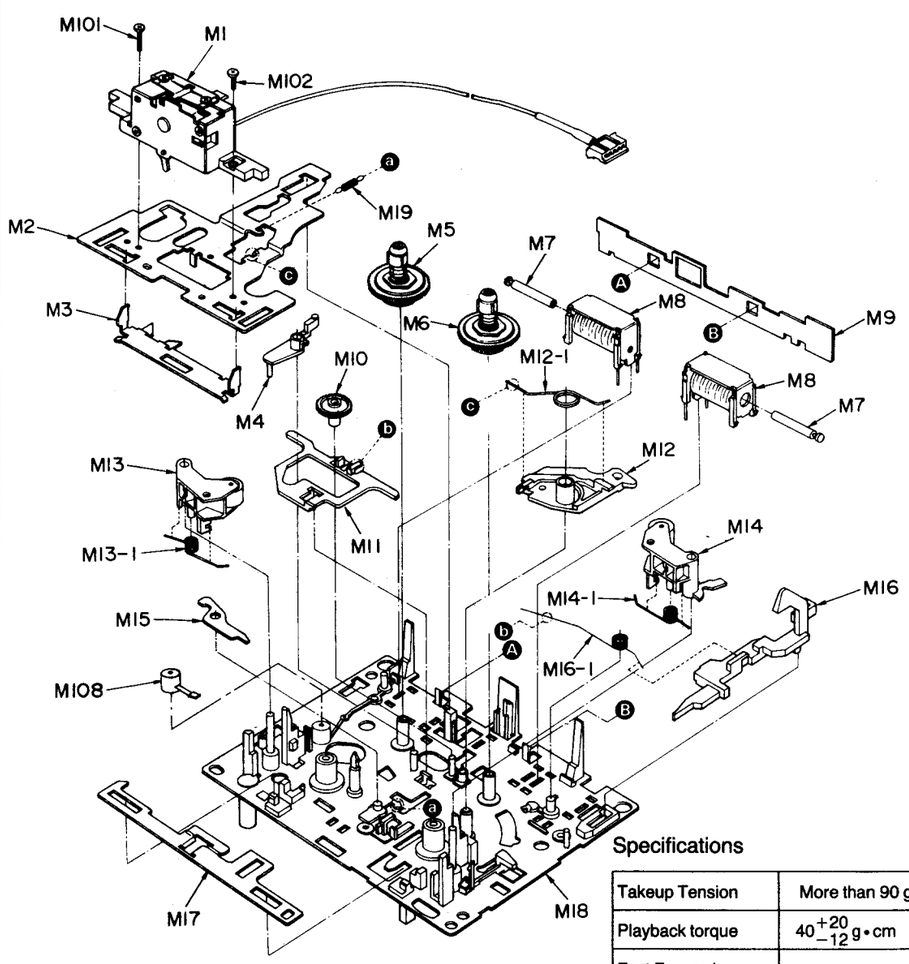


Fig. 3

Pin No.	Pin Name	Function IC303 (TC9312N018)	Function IC304 (TC9312N017)	Description IC304 (TC9312N018)	Description IC303 (TC9312N017)
1	GND	GND		Ground	
2	OSC	Clock oscillator		Approx. 64kHz	
3	CL	Clear		Resets the operation when the power supply voltage drops (3.5V).	
4	IN-1	FF/REW		FF/REW mode switch detection: "L" during FF/REW mode.	
5	IN-2	PLAY SW		PLAY mode switch detection: "L" during PLAY and REC mode.	
6	IN-3	REV REC	Key input	REV REC mode detection: "H" during REV REC mode.	Input for FWD PLAY and REW.
7	IN-4	FWD REC	Key input	FWD REC mode detection: "H" during FWD REC mode.	Input for REV PLAY, FF and STOP.
8	IN-5	Key input	TPS input	Input for FWD PLAY and STOP.	"L" during use signal and "H" during no signal.
9	IN-6	Key input		Input for REV PLAY and STOP.	Input for High Dubbing, FF, STOP.
10	IN-7	Key input		Input for REW and FF.	Input for Dubbing, REW and Dubbing STOP.
11	IN-8	REV mode		⇄ : "H", ⊃ : "M", ⟲ : "H", ∞ : "M", Syncro Reverse : "H" "M" :2.5V	
12	IN-9	Mode		Blank skip/TPS (refer to Fig. 2.)	
13	IN-10	Auto-Stop		Rotation of the reel table (with ring magnets) is detected with the Hall IC (DN6851A) to determine the end of tape. Square wave output in PLAY, FF, REW, TPS.	
14	I/O-1	Key input	Key OK	Input for REC-Standby and FF.	Key INH input: Key inputs are accepted when "H".
15	I/O-2	TPS input	Dubbing OK	"L" during use signal and "H" during no signal.	Dubbing starts when "L".
16	I/O-3	Dubbing S/S	Relay	"H" when dubbing starts; "L" (momentary) during synchro-reverse.	Tape [1] starts when the relay play input is "L".
17	I/O-4	Key-INH.	Relay SW	Inhibits the key input for tape [1]. "L" when tape [2] starts operating.	Relay play switch. Relay play when "L".
18	OUT-10	Timer	Relay	Mode setting for the timer standby.	"L" when relay play from tape [1] to tape [2].
19	OUT-9	Relay	Key-INH.	"L" when relay play from tape [2] to tape [1].	Inhibits the key input for tape [2]. ("L" when tape [1] starts operating)
20	OUT-8	REV LED	Dubbing S/S	"L" during FWD PLAY; "H" during REV PLAY. Alternates repidly between "L" and "H" during TPS.	"H" when dubbing starts; "L" (momentary) during syncroreverse.
21	OUT-7	FWD LED		"H" during FWD PLAY; "L" during REV PLAY. Alternates repidly between "H" and "L" during TPS.	
22		REC LED	REV LED	"H" during REC mode.	"L" during FWD PLAY; "H" during REV PLAY. Alternates repidly between "H" and "L" during TPS.
23	OUT-5	DMT		"L" during audio muting PLAY/REC STANDBY.	
24	OUT-4	Compalsory normal	High speed	"H" during synchro-reverse or start of high speed dubbing.	"H" during high speed dubbing.
25	OUT-3	CAP Motor		"L" during STOP; otherwise "H".	
26	OUT-2	PLAY PL		Play plunger drive. Momentary "H" when switching the PLAY, REC, and TPS operations.	
27	OUT-1	FF/REW PL		FF/REW plunger drive. Momentary "H" when switching the FF, REW, and TPS operations.	
28	VDD	Power supply		Approx. 5V.	

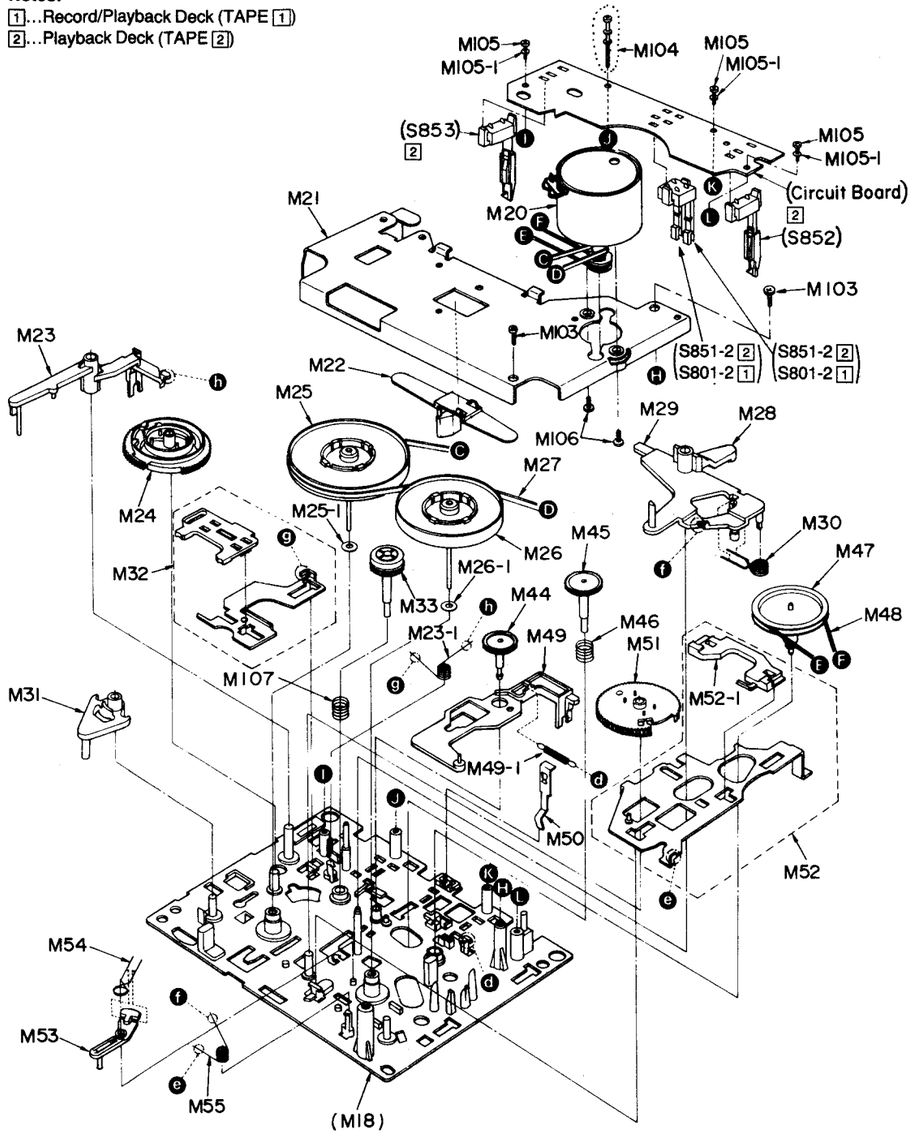
MECHANISM PARTS LOCATION

■ TOP VIEW



■ BOTTOM VIEW

Notes:
1...Record/Playback Deck (TAPE 1)
2...Playback Deck (TAPE 2)



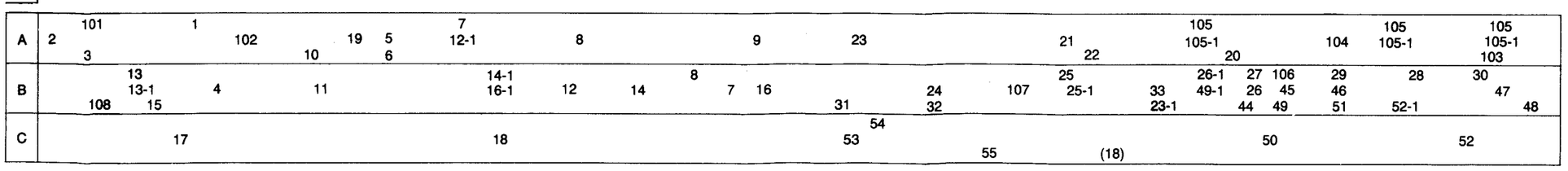
Specifications

Takeup Tension	More than 90 g
Playback torque	40^{+20}_{-12} g•cm
Fast Forward torque	90^{+35}_{-25} g•cm
Rewind torque	90^{+35}_{-25} g•cm
Pressure of pressure roller	210±30 g
Wow and flutter	Less than 0.17% (WRMS)

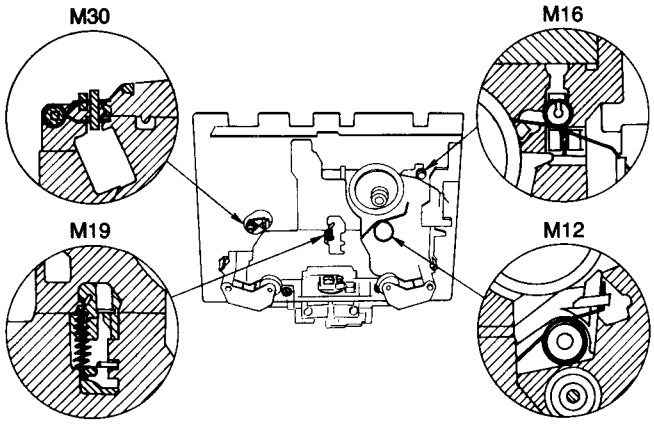
Mechanism Operation: Full Auto Stop.

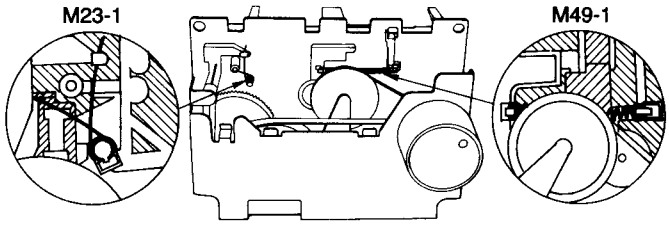
REPLACEMENT PARTS LIST

Ref. No.	Part. No.	Part Name & Description
		MECHANICAL PARTS
M1	**RMDG0010Z**	Head Block Ass'y (Tape 1)
M1	**RMDG0011Z**	Head Block Ass'y (Tape 2)
M2	**RUA9029X**	Head Base
M3	**RUB342Z**	Pinch Roller Change Rod
M4	**RUB347Z**	Arm, Take Up
M5	**RDMG0002Z**	Reel Table Ass'y (Reverse)
M6	**RDMG0001Z**	Reel Table Ass'y (Forward)
M7	**RUB358Z**	Shaft, Planger Ass'y
M8	**RUEG0006Z**	Plunger Ass'y
M9	**RUB344Z**	Lever, Switch
M10	**RDG5772Z**	Gear, Take Up Relay
M11	**RUB353Z**	Brake Rod
M12	**RUBG0001Z**	Main Lever Ass'y
M12-1	**RUW14Z**	Spring (Main Lever Ass'y M'tg)
M13	**RUBG0007Z**	Pinch Roller Ass'y (Reverse)
M13-1	**RUW13Z**	Spring (Pinch Roller Ass'y) (Reverse)
M14	**RUBG0006Z**	Pinch Roller Ass'y (Forward)
M14-1	**RUW12Z**	Spring (Pinch Roller Ass'y) (Forward)
M15	**RUB343Z**	Lever, FF
M16	**RUB414Z**	Cassette Lock Rod
M16-1	**RUW17Z**	Spring (Cassette Lock Rod)
M17	**RUB341Z**	FR Change Rod
M18	**RUAG0001Z**	Mechanism Chassis Ass'y
M19	**RUD9Z**	Spring (Head Base)
M20	**RFM68Z**	DC Motor Ass'y
M21	**RUL734Z**	Bracket, Flywheel
M22	**RMD5001Z**	Spacer
M23	**RUB350Z**	Lever, Main Control
M23-1	**RUW10Z**	Spring (Main Control Lever)
M24	**RDG5776Z**	Gear, Main
M25	**RDWG0001Z**	Flywheel Ass'y (Forward)
M25-1	**QBW2123**	Washer (Flywheel Ass'y M'tg) (Forward)
M26	**RDWG0002Z**	Flywheel Ass'y (Reverse)
M26-1	**QBW2124**	Washer (Flywheel Ass'y M'tg) (Reverse)
M27	**RDV43Z**	Belt, Main
M28	**RUB346Z**	Arm, FF
M29	**RUB348Z**	Lever, FF
M30	**RUW9Z**	Spring (FF Arm)
M31	**RUB354Z**	Arm, FR Select
M32	**RUBG0003Z**	FR Rod Ass'y
M33	**RDGG0003Z**	Reel Table Gear Ass'y
M44	**RDG5773Z**	Gear, FF Relay
M45	**RDG5769Z**	Gear, Reel Table
M46	**RUQ10Z**	Spring (Back Tension)
M47	**RDRG0001Z**	Main Pulley Ass'y
M48	**RDV42Z**	Belt, FF
M49	**RUB349Z**	Lever, Sub Control
M49-1	**RUD8Z**	Spring (Sub Control Lever)
M50	**RUS609Z**	Spring (Cassette Pressure)
M51	**RDG5775Z**	Gear, Sub
M52	**RUBG0004Z**	FF Rod Ass'y
M52-1	**RUB345Z**	FF Select Rod
M53	**RUB359Z**	Lever, Take Up Change
M54	**RUW15Z**	Spring (Take Up Change Lever)
M55	**RUW8Z**	Spring (FF Rod Ass'y)
M101	**XTN2+8B**	Screw (Head Block Ass'y M'tg)
M102	**XTN2+5B**	Screw (Head Block Ass'y M'tg)
M103	**XTN26+7B**	Screw (Circuit Board, Flywheel Blacket M'tg)
M104	**XYC2+FF15**	Screw (Circuit Board M'tg)
M105	**XTN2+5B**	Screw (Circuit Board M'tg)
M105-1	**XWG2**	Washer (Circuit Board M'tg)
M106	**XSN26+3**	Screw (DC Motor Ass'y M'tg)
M107	**RUQ30Z**	Spring (Back Tension)
M108	**RNL1Z**	Damper Arm



■ SPRING PARTS LOCATION





DISASSEMBLY PROCEDURES FOR THE MAJOR MECHANICAL PARTS

■ PINCH ROLLER (Fig. 1)

- Remove the two ribs and pull out the pinch roller (L, R)

■ HEAD BLOCK Ass'y (Fig. 1)

- Remove the one screw M101 (3×8)mm and the one screw M102 (3×5)mm.

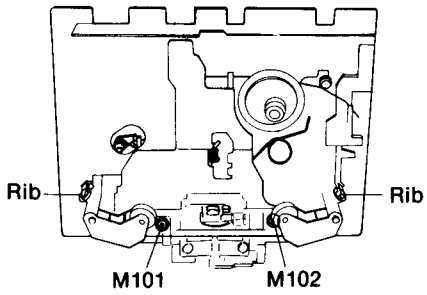


Fig. 1

■ MOTOR Ass'y (Fig. 2, 3)

- Remove the two screws M103 (2.6×7)mm and remove the print circuit board. (Fig. 2)
- Remove the one screw M103 (2.6×7)mm and remove the flywheel bracket (Fig. 2)
  (At this time, the belt also comes off. To install the belt, see the section below on installing the belt)
- Remove the two screws M106 (2.6×3)mm. (Fig. 3)

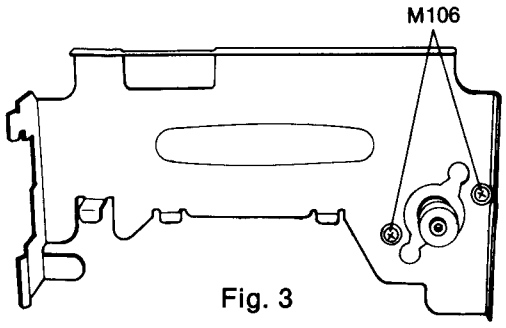


Fig. 3

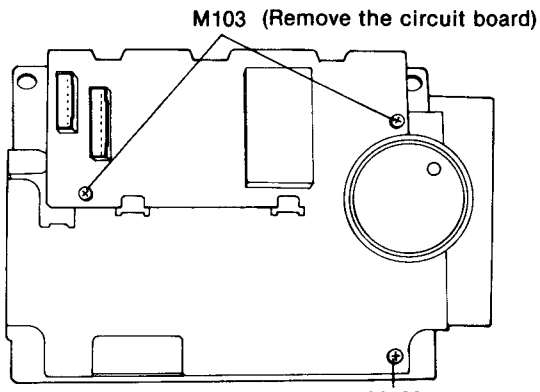


Fig. 2

■ FLYWHEEL Ass'y (Fig. 4)

- Remove the flywheel bracket by removing the motor ass'y.
- Pull out the flywheel ass'y in the direction of arrow.

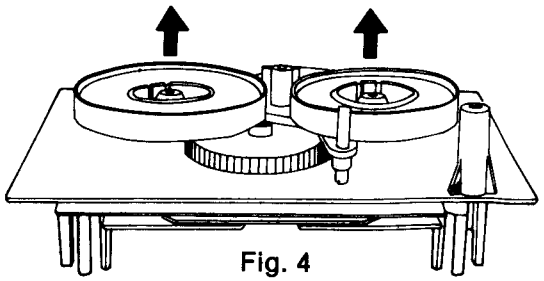


Fig. 4

D

■ INSTALLING THE BELT

- If the belt has come off, install as follows. (The flywheel bracket has been removed in the following illustrations.)

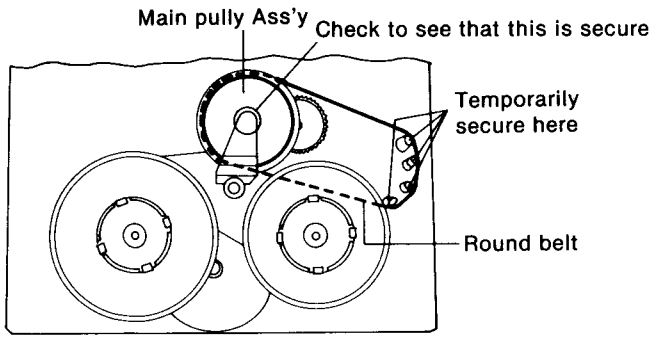


Fig. 5

- Attach the round belt to the main pulley ass'y and temporarily secure to the base on the mechanism chassis. (Check to be sure that the main pulley ass'y is firmly secured since the rubber tension of the belt will pull on it.)

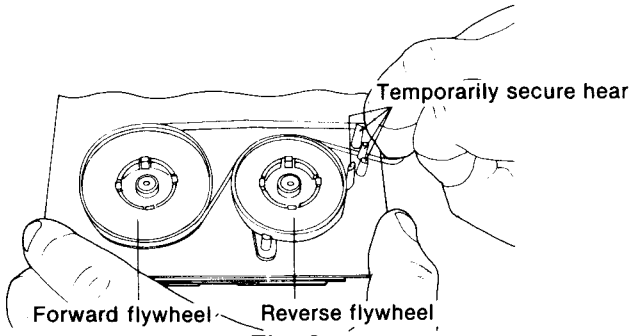


Fig. 6

- Attach the flat belt to the forward flywheel. Then attach it to the reverse flyweel and then temporarily secure it to the base where the round belt is secured. (Fig. 6)

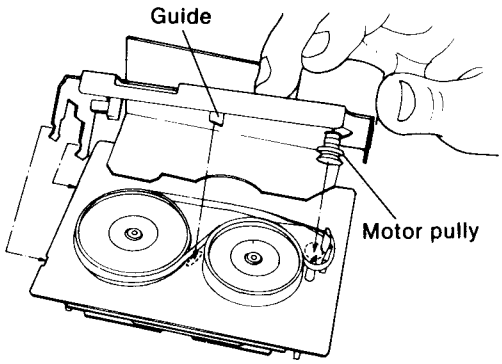


Fig. 7

- When mounting the flywheel bracket, position the mechanism chassis and the flywheel bracket so that the motor pulley and guide fit on the chassis as shown in Fig. 7.
- Screw down the flywheel bracket. (Fig. 8)
- Using a screwdriver, position the flat belt on the top side of the motor pulley and then the round belt on the bottom side of the motor pulley.

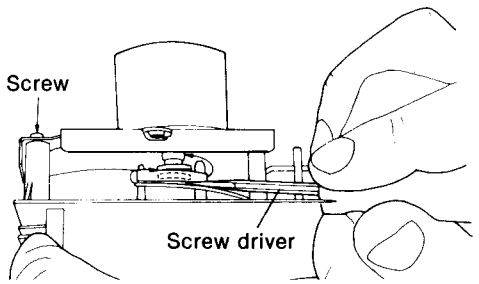
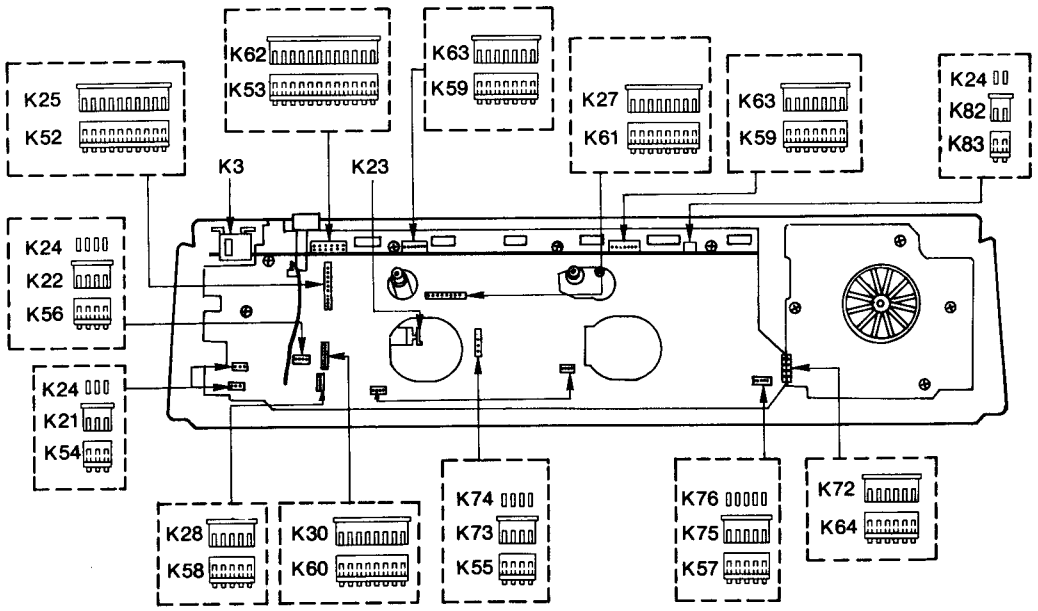
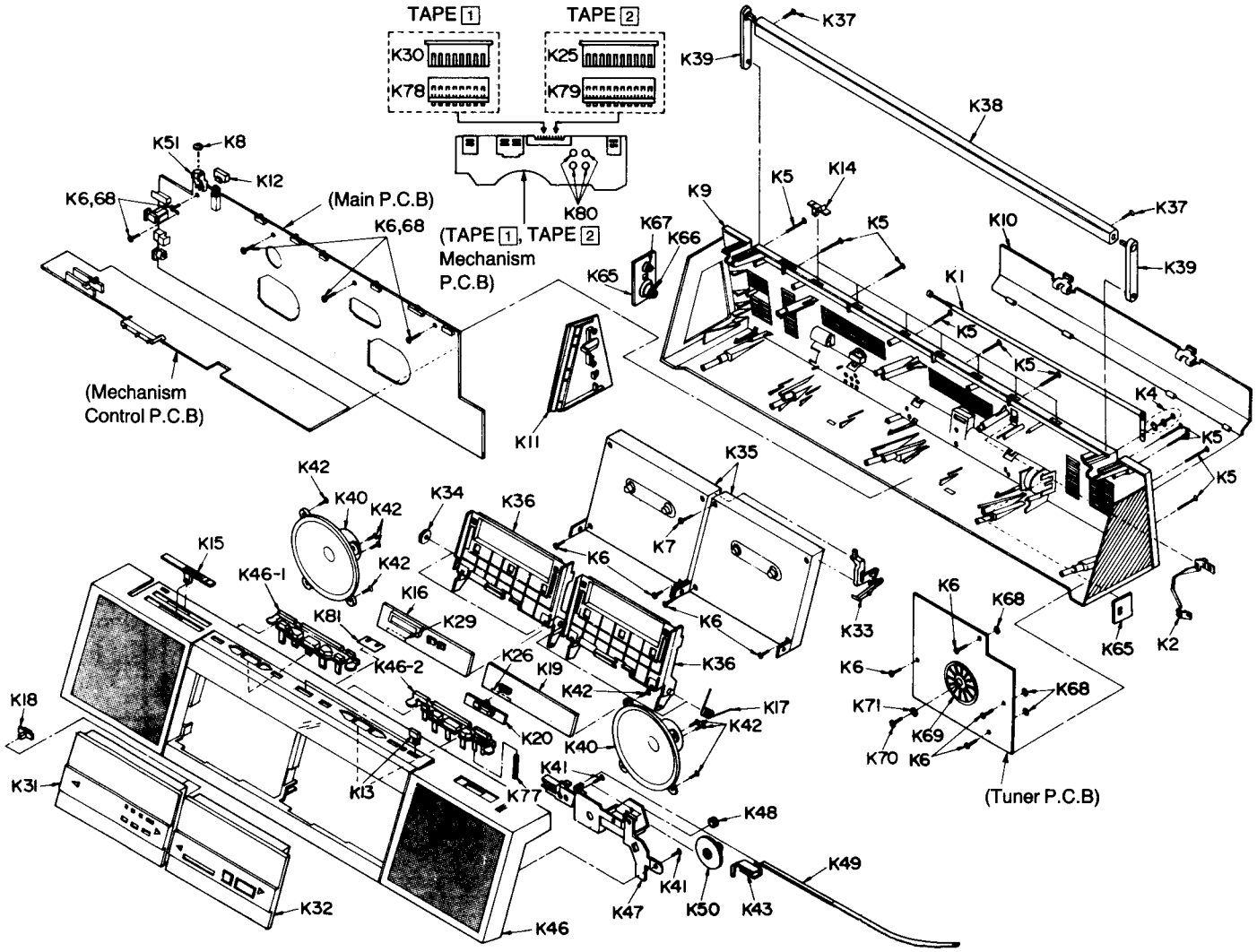


Fig. 8

CABINET PARTS LOCATION





REPLACEMENT PARTS LIST

- The color name in parentheses ( ) in the parts list is the color of that part.

Ref. No.	Part. No.	Part Name & Description
		CABINET PARTS
K1	**XEARR225DAK**	Telescopic Antenna
K2	**RJT1033Z**	Antenna Terminal
K3	**RMD1138Z**	Angle, P.C.B Holding
K4	**XYN3+F15FY**	Screw ⊕ 3×15 (Antenna M'tg)
K5	**XTV3+35G**	Tapping Screw ⊕ 3×35 (Rear Cabinet M'tg)
K6	**XTV3+12G**	Screw ⊕ 3×12 (Circuit Board, Mechanism M'tg)
K7	**XTV3+20G**	Screw ⊕ 3×20 (Mechanism M'tg)
K8	**RHG2104Z**	Microphone Rubber
K9	**RKF801Y**	Rear Cabinet
K10	**RKK306Z**	Battery Cover
K11	**RKE539Z**	Jack Board (Black)
K12	**RBC834Z**	Button, Power
K13	**RBC840Z**	Button, Stop/Eject
K14	**RBD363Z**	Knob, Timer Stand by/TPS/Blank Skip/Tape Selectors/Function Selector/Band/Mode Selector/Beat Proof
K15	**RBD364Z**	Knob, Volume/Tone
K16	**RSC24610Y**	LCD Circuit Ass'y
K17	**RUS647Z**	Spring (Cassette Lid)
K18	**RBD365Z**	Knob, Timer Set Selector
K19	**RSC24611Z**	Reverse Mode Block
K20	**RBD366Z**	Knob, Reverse Mode
K21	**RJS3L3Z**	Socket (3P) (CS10, CS11)
K22	**RJS4L3Z**	Socket (4P) (CS9)
K23	**RJC314Y**	Battery Terminal (+)
K24	**RJT707Z**	Terminal (Socket)
K25	**RJS10L13Z**	Socket (10P) (CS5, CS10)
K26	**RJS8L15Z**	Socket (8P)
K27	**RJS8L16Z**	Socket (8P) (CS6)
K28	**RJS5L15Z**	Socket (5P) (CS8)
K29	**RJS5L16Z**	Socket (5P)
K30	**RJS8L13Z**	Socket (8P) (CS7)
K31	**RYP1XFW50M**	Cassette Lid Ass'y (Tape 1)
K32	**RYP2XFW50M**	Cassette Lid Ass'y (Tape 2)
K33	**RUB410Z**	Eject Lever
K34	**QDG1102**	Dumper Gear
K35	**RZCXFW50J**	Ornaments Plate Ass'y
K36	**RYQXFW50J**	Cassette Holder Ass'y
K37	**XTC3+8CFN**	Tapping Screw ⊕ 3×8 (Handle M'tg)
K38	**RKH140Z**	Handle (Black)
K39	**RKX282Z**	Arm, Handle (Silver)
K40	**EAS10P288S**	Speaker
K41	**XTV3+12G**	Tapping Screw ⊕ 3×12 (Dial Chassis M'tg)
K42	**XTV3+8G**	Tapping Screw ⊕ 3×8 (Speaker M'tg)
K43	**RDP304Z**	Dial Pointer (White)
K46	**RYMXFW50M**	Front Cabinet Ass'y
K46-1	**RBC835Z**	Button, Mechanism (Tape 1)
K46-2	**RBC842Z**	Button, Mechanism (Tape 2)
K47	**RUA668Z**	Dial Chassis
K48	**RDG5836Z**	Intermediate, Gear
K49	**RDE157Z**	Ruck, Dial Pointer
K50	**RBT255Z**	Knob, Tuning (Black)
K51	**RJM157Z**	Built-in Microphone
K52	**RJP10G18Z**	Plug (10P) (CP5)
K53	**RJP12G11Z**	Plug (12P) (CP14)
K54	**RJP3G4Y**	Plug (3P) (CP10, CP11)
K55	**RJP4G10Z**	Plug (4P) (CP4)
K56	**RJP4G4Y**	Plug (4P) (CP9)
K57	**RJP5G10Z**	Plug (5P) (CP2)
K58	**RJP5G20Z**	Plug (5P) (CP8)
K59	**RJP7G11Z**	Plug (7P) (CP12, CP13)
K60	**RJP8G18Z**	Plug (8P) (CP7)
K61	**RJP8G20Z**	Plug (8P) (CP6)
K62	**RJS12M3Z**	Socket (12P) (CS14)
K63	**RJS7M3Z**	Socket (7P) (CS12, CS13)
K64	**RJS6M5Z**	Socket (6P) (CS15)
K65	**RUP2028Y**	Circuit Board (Battery)
K66	**RJC511Z**	Spring, Battery (−)
K67	**RJC751Z**	Spring, Battery (−)
K68	**RNW462Z**	Spacer
K69	**RDG5778Z**	Gear, Dram
K70	**XSN26+6B**	Screw ⊕ 2.6×6 (Dram Gear M'tg)
K71	**XWA4B**	Washer Ø4 (Dram Gear M'tg)
K72	**RJP6G16Z**	Plug (6P) (CP15)
K73	**RJS4L4Z**	Socket (4P) (CS4)
K74	**RJT807Z**	Terminal (Socket)
K75	**RJS5L4Z**	Socket (5P) (CS2)
K76	**RJT807Z**	Terminal (Socket)
K77	**RUQ35Z**	Coil Spring
K78	**RJP8G17Z**	Plug (8P) (CP801)
K79	**RJP10G17Z**	Plug (10P) (CP851)
K80	**RJS1H1Z**	Pin
K81	**RJT1041Z**	Shield Plate
K82	**RJS2L4Z**	Socket (2P) (CS16)
K83	**RJP2G10Z**	Plug (2P) (CP16)

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ELECTRICAL PARTS LIST

ELECTRICAL PARTS LIST

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)
ERX	2	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Resistor Type	Wattage Tolerance
ERD: Carbon	10 : ⅛ W J : ±5%
ERD: Metal Film	12 : ½ W
ERX: Metal Film	25 : ¼ W
ERQ: Fuse Type Metal	1 : 1 W
RRD: Carbon (Chip Type)	18 : ⅛ W

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value (1000 pF)	Tolerance	Peculiarity
ECEA	50	M	R47	
Type	Voltage	Peculiarity	Value (0.47 μF)	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA: Electrolytic	OJ : 6.3 V	2H : 500 V DC	C : ±0.25 pF
ECCD: Ceramic	1A : 10 V	1 : 100 V	J : ±5%
ECKD: Ceramic	1C : 16 V	DKC : 400 V AC	K : ±10%
ECQM: Polyyester	1E : 25 V		Z : +80%, −20%
	1H : 50 V		
ECQP: Polyproylene	1V : 35 V		P : +100%, −0%
	50 : 50 V		
ECET: Electrolytic			
ECEA□□□N: Non Polar Electrolytic	25 : 25 V		
	16 : 16 V		
QCU □: Ceramic (Chip Type)			
ECUX: Ceramic (Chip Type)			

Ref. No.	Part. No.
RESISTORS	
R1	**ERDS2TJ221**
R2,5	**ERDS2TJ101**
R3,12	**ERDS2TJ470**
R4	**ERDS2TJ824**
R6,7	**ERDS2TJ471**
R8,11,15	**ERDS2TJ392**
R9,21	**ERDS2TJ474**
R10	**ERDS2TJ103**
R13	**ERDS2TJ152**
R14	**ERDS2TJ102**
R16,20	**ERDS2TJ682**
R17	**ERDS2TJ100**
R18,19	**ERDS2TJ333**
R22	**ERDS2TJ223**
R101,201,361, 362	**ERDS2TJ333**
R102,202	**ERDS2TJ822**
R103,107,127, 135,203,207,227, 235,313,326	**ERDS2TJ682**
R104,108,116, 119,137,204,208, 216,219,237	**ERDS2TJ473**
R105,110,205, 210	**ERDS2TJ392**
R106,206,211, 312	**ERDS2TJ220**
R109,113,209, 213	**ERDS2TJ104**
R111	**ERD25FJ180**
R112,117,212, 217,327	**ERDS2TJ153**
R114,118,214, 218,308,315,325, 360,374,384	**ERDS2TJ222**
R115,215	**ERDS2TJ821**
R120,122,220, 222	**ERDS2TJ183**
R121,221	**ERDS2TJ223**
R123,223,311, 316,322,323,324, 330,336,343,345, 346	**ERDS2TJ472**
R124,224	**ERDS2TJ331**
R125,130,225, 230,385	**ERDS2TJ122**
R126,134,226, 234,310,376,378, 388	**ERDS2TJ101**
R128,131,228, 231,301,306,307, 331,335,377,379, 380,381	**ERDS2TJ102**
R129,229,309, 314,334,351,353, 387	**ERDS2TJ105**
R132,136,232, 236,303,321,333, 339,347,348,357, 359,369,382,383	**ERDS2TJ103**
R133,233	**ERDS2TJ1R0**
R302,370	**ERDS2TJ681**
R304,305,340, 363,364,365,366, 372	**ERDS2TJ471**
R318,344	**ERDS2TJ470**
R319	**ERDS2TJ2R2**
R328,332	**ERDS2TJ152**
R329,337,342	**ERDS2TJ332**
R338	**ERDS2TJ154**
R341	**ERD25TJ106**
R354,355,356, 358,367,368	**ERDS2TJ221**
R373	**ERDS2TJ181**
R386	**ERX12ANJR22U**
CAPACITORS	
C1,4,6,10,11,13	**ECKD1H102MD**
C2,7	**ECCD1H180KC**
C3,5,12	**ECCD1H050CC**
C8	**ECCD1H150KC**
C9	**ECCD1H470KC**
C14,15,17,22,23, 26,31,33	**ECFT1C223MD**
C16,27	**ECKD1H103ZF**
C18,29	**ECEA0JU101**
C19,28,38,41	**ECEA1HU010**
C21	**ECEA1HU2R2**
C24	**ECKD1H471KB**
C32,34	**ECFT1C103MD**
C36	**ECEA1HU0R1**
C37	**ECEA1CU100**
C39	**ECQM1H102KV**
C59,117,123,126, 134,217,223,226, 234,306	**RCBS1H102KB**
C101,105,106, 109,110,115,120, 121,124,125,136, 201,205,206,209, 210,215,220,221, 224,225,236,307, 311,315,321,330	**ECEA1HU010**
C102,103,108, 111,202,203,208, 211,355	**RCBS1H471KB**
C104,112,204, 212	**ECFT1C333KD**
C107,113,207, 213,305,343	**ECEA0JU470**
C114,214	**RCBS1C152MX**
C116,216	**ECFT1C223MD**
C118,131,218, 231,319	**ECFT1C473MD**
C119,127,219, 227,310,326,329, 338,357	**ECEA0JU101**
C122,222,302, 322	**ECEA1HU0R1**
C128,228	**ECEA1AU470**
C129,229,352	**ECEA0JU471**
C130,133,230, 233,303	**ECFT1C104MD**
C132,232,334, 353	**ECFT1C153MD**
C304	**ECQP2A472JZ**
C308	**ECQP2A223JZ**
C309,316,317	**RCBS1C332MX**
C313	**ECFT1C683MD**
C314	**ECEA1CU221**
C318,340,354	**RCBS1C103NY**
C323	**ECEA1HUR22**
C324,325,327, 345	**ECEA1CU100**
C328	**ECEA1EU4R7**
C331,332,337	**ECEA1CU101**
C333,335	**ECQP2A822JZ**
C339	**ECEA1AU221**
C341	**ECEA1CU332**
C342	**ECQV1H474JZ**
C344,350	**ECEA0JU221**
C356	**ECEA1HUR47**

ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part. No.	Part Name & Description
		ACCESSORIES
A1	**RP-AC901M**	AC Adaptor ⚠
A2	**RQX4732Z**	Operating Instructions
		PACKINGS
P1	**RPK2210Z**	Gift Box
P2	**RPH417Z**	Packing Sheet
P3	**RPH508Z**	Packing Sheet
P4	**RPN9515Z**	Cushion
P5	**RPP435Z**	Protection Cover

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.